

Studer Editech Corporation 1865 Air Lane Drive, Suite 12 Nashville, Tennessee 37210 Telephone: 615/391-3399 Telefax: 615/391-5974

# STUDER EDITECH CORPORATION PROFESSIONAL PRODUCTS LIMITED WARRANTY IN THE UNITED STATES

If within twelve (12) months of delivery of a new product (the "Equipment") to the Customer, any defect shall appear therein which is due to a failure of material or workmanship, Studer Editech Corporation (SEC) shall correct the defect at its expense; provided the Customer gives notice to SEC of the defect promptly upon discovery. The obligation of SEC hereunder shall not extend to any defects that, in SEC's reasonable opinion, are due to normal wear and tear, accident, misuse, failure to maintain or to any Equipment which the Customer has attempted to repair or have repaired by any third party. SEC may require the Customer to return the Equipment alleged to be defective freight prepaid. Alternatively, if to suit the Customer's convenience, SEC agrees to correct any defect for which SEC is responsible by doing the remedial work on the Customer's premises, SEC may make a reasonable charge for labor and for incidental expenses, such as travel expenses for service personnel, in which case the Customer shall make it possible for the work to be performed during normal working hours. The foregoing provisions shall not apply in the case of any subsystem or component incorporated into the Equipment which is not manufactured by a related supplier of SEC, except for limited warranty specifically provided by such manufacturer to the Customer, but not to exceed (12) months from date of delivery.

Future hardware and/or software updates may be offered to the Customer for a reasonable charge, as determined by SEC. If an update is necessary, as determined by SEC, then such update may be provided free of charge at the option of SEC, except that the Customer shall pay all travel related expenses for any such free issue update. Advance warranty replacement of parts may be provided at the option of SEC, subject to credit approval and open account status.

DISCLAIMER: The warranty contained above hereof is in lieu of all other warranties, express or implied. The Customer that it is relying on SEC's skill or judgment to select or furnish goods suitable for any particular purpose, and there shall be no implied warranty of merchantability or fitness for any particular purpose.

LIMITATION OF LIABILITY: In no event shall SEC be liable for any special, indirect, incidental or consequential damages, or for any damages which exceed the purchase price to the Customer of the equipment under any circumstances whatsoever. The Equipment is not consumer goods but intended for professional commercial applications.

(Over)

## OUT OF WARRANTY REPAIR/REPLACEMENT

A replacement part may be shipped to you prior to the receipt of the defective part by Studer Editech Corporation (SEC). Please contact us regarding exchange costs on all items.

Replacement parts will be sent at the full new part price plus shipping. When the defective items are received by SEC, a partial credit will be issued for the parts only, less shipping charges.

## For a part to be accepted for exchange, the following conditions must be met:

- ► The defective part must be shipped to SEC prepaid, and must be received by us within 30 days of the billing date of the replacement part.
- All parts must be returned with a clear statement describing defects.
- The defective part must be in repairable condition, and will be inspected for modifications or damage before credit is issued. Acceptability of the defective part for exchange credit will be totally at our discretion.

Parts not accepted for exchange will be repaired (if possible) and returned to the sender. On receipt of the repaired part, the sender must then return the replacement part within two weeks of the billing date of the repair. Parts not accepted for repair will be returned to the sender, and the sender must either pay the full part price or return the replacement part for credit. No credit will be issued for shipping.

Repair costs include labor, tax, parts, and return shipping charges. If an estimate is required, please include a note stating so. Also, indicate desired return shipping method (air, UPS, etc.)

If the original replacement parts are returned, full credit, less shipping, will be issued, provided a note is included stating that these are the original, non defective items, and they pass inspection.

Note! All information in this Out of Warranty Repair/Replacement statement is subject to change without notice.

# A820 CONVERSION

# EINBAUANLEITUNG MOUNTING INSTRUCTIONS

OPTION 21.820.496.00 UMRUSTSATZ VON 1/4" TC 2-SPUR AUF 1/2" TC 2-SPUR

OPTION 21.820.497.00 UMRUSTSATZ VON 1/2" 2-SPUR/STEREO AUF 1/4" 2-SPUR/STEREO, 0,75 mm TRENNSPUR

OPTION 21.820.498.00 UMRUSTSATZ VON 1/2" 2-SPUR/STEREO AUF 1/4" 2-SPUR/STEREO, 2 mm TRENNSPUR

OPTION 21.820.499.00 UMRUSTSATZ VON 1/4" 2-SPUR/STEREO AUF 1/2" 2-SPUR/STEREO

| UMRUST-KITS |  |  |  |
|-------------|--|--|--|
| enthaltend: |  |  |  |

| enthaltend:                     | 1-           |     |    |      |     |
|---------------------------------|--------------|-----|----|------|-----|
| Option 21.820.496.00            |              |     |    |      |     |
| Option 21.820.497.00            | _            |     |    |      |     |
| Option 21.820.498.00            | a            |     |    |      | o   |
| Option 21.820.499.00            | -            |     |    |      |     |
| Distanzscheibe O,6 mm           | 1.013.341.02 | 2   | 2  | 2    | 2   |
| Senkschraube IS, M3 x 6         | 21.51.2354   | 2   | 2  | 2    | 2 3 |
| Senkschraube spez. M4 x 14      | 1.010.036.21 | 2   | 11 | 11   | 3   |
| Senkschraube spez. M4 x 20      | 1.010.040.21 | 8   |    |      | 8   |
| Dreizack-(Cine-) Adapter 1/4"   | 1.013.347.00 |     | 2  | 2    |     |
| Prazisionsadapter NAB 1/2"      | 1.013.345.00 | 2   |    | e    | 2   |
| kopitr. A820-2 TC 1/2"          | 1.050.122.00 |     |    |      | 1   |
| Kopitr. A820-0.75, 2CH LK, 1/4" |              |     |    | 1    |     |
| Kopitr. A820-2/2 1/4"           | 1.050.104.81 | 1   | 1  |      |     |
| Kopftr. A820-2/2 1/2"           | 1.050.121.81 | 1   |    |      |     |
| Abdeckung Vorberunigungsrolle   | 1.820.110.05 | 1   | 1  | 1    | 1   |
| Abdeckung Tachorolle 1/4"       | 1.820.110.06 |     | 1  | 1    |     |
| Abdeckung Tachorolle 1/2"       | 1.820.110.15 | 1   |    |      | 1   |
| Zwischenstück 1/2" ("Banane")   | 1.820.110.14 | 1   |    |      | 1   |
| Klebeschiene 1/4"               | 1.820.110.18 |     | 1  | 1    |     |
| Klebeschiene 1/2"               | 1.820.110.12 | 1   |    | 1    | 1   |
| Klebeschienen-Untersatz         | 1.820.110.13 | 1   | 1  |      | 1   |
| Biegeteder zu Klebeschiene      | 1.820.110.16 | 1   | 1  | 1    | 1   |
| Abhebebolzen kul. 1/4"          | 1.820.121.00 |     | 1  | 1    |     |
| Abhebebolzen kpl. 1/2"          | 1.820.122.00 | 1   |    |      | 1   |
| Führungsrolle (schwer) 1/4°     | 1.820.400.01 |     | 1  | 1    | ١.  |
| Führungsrolle (schwer) 1/2"     | 1.820.410.01 | 1   |    | L    | 1   |
| Führungsrolle (leicht) 1/4"     | 1.820.400.02 | ١.  | 3  | 3    | ١,, |
| Führungsrolle (leicht) 1/2"     | 1.820.410.02 | 3   | ١. | ļ ,  | 3   |
| Rollendeckel 1/4"               | 1.820.400.05 | ١   | 4  | 4    | ١.  |
| Rollendeckel 1/2"               | 1.820.410.05 | 4   | ۱, | الما | ۱ 4 |
| Vorberrolle (glatt) 1/4"        | 1.820.400.03 | ١., |    | 1    |     |
| Vorberrolle (glatt) 1/2"        | 1.820.410.03 | 1   |    |      | 1   |
| Tachorolle (gerillt) 1/4°       | 1.820.400.04 | ١., | 1  | 1    |     |
| Tachorolle (gerillt) 1/2"       | 1.820.410.04 | 2   |    | -    | 1   |
| Rollenmitnehmer                 | 1.820.400.06 | ۲   | _  |      | ľ   |
| Andruckrolle montiert 1/4"      | 1.820.420.00 | 1   | 1  | 1    | ۱.  |
| Andruckrolle montiert 1/2"      | 1.820.430.00 | ;   | 1  | 1    | 1   |
| Einbauanleitung                 | 10.27.0321   | ١'  | Ι' | 1    | י ו |

OPTION 21.820.496.00 CONVERSION KIT FROM 1/4" TC 2-TRACK to 1/2" TC 2-TRACK

OPTION 21.820.497.00 CONVERSION KIT FROM 1/2" 2-TRACK/STEREO TO 1/4" 2-TRACK/STEREO, O,75 mm TRACK SEPARATION

OPTION 21.820.498.00 CONVERSION KIT FROM 1/2" 2-TRACK/STEREO TO 1/4" 2-TRACK/STEREO, 2 mm TRACK SEPARATION

OPTION 21.820.499.00 CONVERSION KIT 1/4" 2-TRACK/STEREO TO 1/2" 2-TRACK/STEREO

#### CONVERSION KITS

| consisting | of | : |
|------------|----|---|
|------------|----|---|

| Option 21.820.496.00  Option 21.820.497.00  Option 21.820.498.00                         |       |
|--|-------|
|  |       |
| Option 21.820.498.00   |       |
|  |       |
| Option 21.820.499.00   |       |
| Spacer disc 0.6 mm 1.013.341.02 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2                      | 2     |
| Øpacer disc 0.6 mm 1.013.341.02№ 2 2 2 2 Countersunk Allen screw M3 x 6 21.51.2354 2 2 2 | 2     |
| Spacer disc 0.6 mm   | 2 2 3 |
| Countersunk spec. screw M4 x 20 1.010.040.21 8   | 8     |
| Three-pronged adapter 1/4" 1.013.347.00   2 2  |       |
| Precision adapter NAB 1/2" 1.013.345.00   2  | 2     |
| Headblock A820-2 TC 1/2" 1.050.122.00  | 1     |
| Headbl. A820-0.75, 2CH LK, 1/4" 1.050.103.81 1   |       |
| Headblock A820-2/2 1/4" 1.050.104.81   1   |       |
| Headblock A820-2/2 1/2" 1.050.121.81 1   |       |
| Cover prestabilizer roller 1.820.110.05 1 1 1  | 1     |
| Cover move roller 1/4" 1.820.110.06 1 1  |       |
| Cover move roller 1/2" 1.820.110.15   1  | 1     |
| Adapter 1/2" ("banana"-shaped) 1.820.110.14   1  | 1     |
| Splicing block 1/4" 1.820.110.18 1 1   |       |
| Splicing block 1/2" 1.820.110.12   1   | 1     |
| Splicing block adapter 1.820.110.13   1   1  | 1     |
| Wire spring to splicing block 1.820.110.16 1 1 1   | 1     |
| Tape Lifter bolt cpl. 1/4" 1.820.121.00 1 1  |       |
| Tape Lifter bolt cpl. 1/2" 1.820.122.00 1  | 1     |
| Guide roller (heavy) 1/4" 1.820.400.01 1 1   |       |
| Guide roller (heavy) 1/2" 1.820.410.01 1   | 1     |
| Guide roller (Light) 1/4" 1.820.400.02 3 3   | 3     |
| Guide roller (light) 1/2" 1.820.410.02 3 8 4 4 4   | د     |
| Ruller cover 1/4" 1.820.400.05 4 4 4 9 1.820.410.05 4 4 4                                | 4     |
| Prest. roller (smooth) 1/4" 1.820.400.03 1 1   | ~     |
| Prest. roller (smooth) 1/2" 1.820.410.03 1   | 1     |
| Move roller (grooved) 1/4" 1.820.400.06 1 1  | •     |
| Move rotter (grooved) 1/2" 1.820.410.04 1  | 1     |
| Rotter driver 1.820.400.06 2 2 2   | ż     |
| Pinch rotter compt. 1/4" 1.820.420.00 1 1  | -     |
| Pinch rotter compt. 1/2" 1.820.430.00 1  | 1     |
| Instruction sheet 10.27.0321 1 1 1   | 1     |

#### STUDIER

#### Anwendung

Zur Umrüstung von Bandmaschinen STUDER A820: • von 1/4" TC 2-Spur auf 1/2" TC 2-Spur:

- von 1/2" 2-Spur/Stereo auf 1/4" 2-Spur/Stereo, Nr. 21.820.497.00 Nr. 21.820.496.00
- 0,75 mm Trennspur: Nr. 21 a von 1/2" 2-Spur/Stereo auf 1/4" 2-Spur/Stereo 2 mm Trennspur: Nr. 21
- Nr. 21.820.498.00
- a von 1/4" 2-Spur/Stereo aut 1/2" 2-Spur/Stereo:

Nr. 21.820.499.00

#### Application

For converting STUDER A820 tape recorders: # from 1/4" TC 2-track to 1/2" TC 2-track:

- No. 21.820.496.00
- from 1/2" 2-track/stereo to 1/4" 2-track/stereo,
- 0,75 mm track separation:
  from 1/2" 2-track/stereo Nr. 21.820.497.00
- 2-track/stereo to 1/4" 2-track/stereo
- 2 mm track separation: Nr. 21.820.498.00
- from 1/4" Z-track/stereo to 1/2" 2-track/stereo:

Nr. 21.820.499.00

#### EINBAU

#### Benötigtes Werkzeug

1 Inbus-Schraubendreher Nr. 2,5 1 Inbus-Schraubendreher Nr. 3 (10.258.003.09) (10.258.003.10)

#### Vorberei tungen

- Bauteile, die sowohl für 1/4"- als auch für 1/2"-Geräte identisch sind, werden im folgenden Text mit "#" gekennzeichnet !
- ersten Einschalten nach dem Umbau des Gerätes werden die Audio- und Bandzugparameter automatisch ange-passt. Das Gerät schaltet selbsttätig: mit einem 1/2"-Kopfträger auf Bandsorte "B", mit einem 1/4"-Kopfträger auf Bandsorte "A".

Falls das Gerat nicht schon mit dem neuen Kopfträger auf die zweite Bandsorte eingemessen war, werden die Detault-Parameter geladen.

Es wird empfonten:

- Audiokanale einzumessen (siehe Kapitel 4.2 Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110).
- die Bandzüge zu kontrollieren und gegebenenfalls neu einzustellen (siehe Kapitel 3.3.8, Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110).
   Ebenfalls beim ersten Einschalten nach dem Umbau des Gerätes wird die Programmierung der Tasten automatisch an-
- gepasst, das LC-Display meldet:

WARN: DEFAULT KEYS LOADED

Falls die vorherige Programmierung der Tasten nach dem Umbau erhalten bleiben soll, ist die Funktion Nr. 246 "SAVE KEY SETTING" einzuschalten, d.h. auf "YES". (Siehe Kapitel 2.6, Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110.)

#### Distanzscheiben auf den Bremsrollen

Bei A820-Tonbandgeräten mit Serie-Nummern kleiner als 1100 zum Teil die Distanzscheiben 1.013.341.02 (0,6 nicht eingebaut. Für Betrieb mit 1/2°-Spulen werden diese Distanzscheiben benötigt. Sie sind für den Betrieb mit Distanzscheiben benötigt. Sie sind für den Betrieb mit 1/4°-Spulen ebenfalls geeignet, können also dauernd im Ge-

- Laufwerkabdeckung oben, hintere Hälfte, entfernen (7 IS-Schrauben Nr. 2,5).
   Spulenadapter durch Druck auf den äusseren Ring des
- Wickeltellers ausklinken, demontieren. Bei jedem Wickelteller 3 IS-Schrauben (Nr. 3) lösen, Wickelteller abheben.
- Bremsbelag (rotliches Gewebe) nicht berühren !
- e Distanzscheibe auf Bremsrolle legen, ausser, wenn schon
- m Wickelteller, Laufwerkabdeckung und Spulenadapter wieder

#### INSTALLATION

#### Required tools

(10.258.003.09) Allen screwdriver size 2.5 1 Allen screwdriver size 3.0 (10.258.003.10)

#### Preparations

- Elements being identical for both 1/4" and 1/2" recordrs are marked with "#" in the following text.
- the first power on after the conversion, and tape deck parameters are adapted automatically. The recorder selects: tape type "B" if it is equipped with a 1/2" headblock, tape type "A" if it is equipped with a 1/4" headblock.
  - If the recorder has not been aligned for the new headblock, the default parameters are loaded.

#### It is recommended:

- To realign the audio channels (refer to Sections 4.2 4.4, Operating and Service Instructions A820, Order No. 10.27.0230), and
- To check the tape tensions and to adjust them, if necessary (refer to Section 3.3.8, Operating and Service Instructions A820, Order No. 10.27.0230).

  Also at the first power on after the conversion, the
- programming of the keys is matched automatically. The LC display indicates:

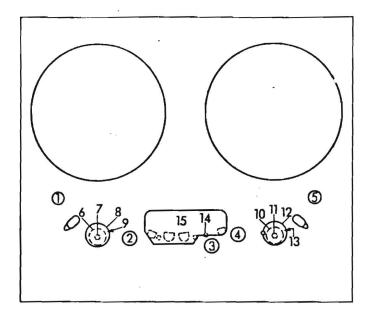
WARN: DEFAULT KEYS LOADED

If the previous programming of the keys is to be saved after the conversion, the function No. 246 "SAVE KEY SETTING" must be switched on, i.e. to "YES". (Refer to section 2.6, Operating and service Instructions A820, Order No. 10.27.0230.)

### Spacer discs on brake rollers

A820 tape recorders with serial numbers below 1'100 partly not been equipped with the 0.6 mm spacer disc 1.013.341.02. However, for operation with 1/2" reels these spacers are necessary. They are also suitable for operation with 1/4" reels, so they can be permanently installed.

- Remove tape transport cover, rear section (7 Allen screws No. 2.5).
  Disengage the reel adapters by pressing the outer ring
- of the spindles downwards.
- Loosen 3 Allen screus (No. 3) at either spindle and lift the spindles off.
- Do not touch the brake linings (reddish fabric).
- Lay a spacer disc onto each brake roller except if they are already inserted.
- Reinstall the spindles and the tape transport cover as well as the reel adapters. e Reinstall



#### Vorberuhigungsrolle [6], Tachorolle [10]

- Abdeckung [8]# der Vorberuhigungsrolle (links, bei der Lichtschranke) sowie Abdeckung [12] der Tachorolle (rechts, bei der Bandschere) ausbauen (je 2 IS-Schrauben Nr. 3).
- Vorberuhigungs Tachorolle ausbauen (je 1 IS-
- Schraube Nr. 3). Neue Vorberuhigungsrolle [6] (glatt) links, und Tachorolle [10] (gerillt) rechts, mit Rollenmitnehmern [7]#
  und [11]# einbauen. Auf richtige Lage der Rollen achten ! Die Senkung in der Rollen-Nabe muss <u>oben</u> liegen.
  - Für 1/2"- und für 1/4"-Geräte: je 1 Schraube H4 x 14.
- Abdeckung [8]# der Vorberuhigungsrolle montieren:
   Für 1/2"-Geräte: 2 Schrauben M4 x 20 und Zwischenstück 1/2" ("Banane").
  - Für 1/4"-Geräte: 2 Schrauben M4 x 14.
- Abdeckung [12] der Tachorolle montieren:
   Für 1/2\*-Geräte: Die Bandschere ist nur für 1/4\*-Band verwendbar, sie wird bei 1/2°-Geräten durch eine spe-zielle Tachorollen-Abdeckung blockiert. Bei der Mon-tage ist darauf zu achten, dass der Verriegelungstage ist darauf zu achten, dass der Verriegelungs-lappen der Tachorollen-Abdeckung in die Ringnut im Druckknopf für die Bandschere eingreift; 2 Schrauben M4 x 20 und Zwischenstück 1/2" ("Banane"). Für 1/4"-Geräte: 2 Schrauben M4 x 14.
- Wenn nach dem Umbau im Betrieb des Gerätes die Heldung

ERR: PINCH ROLLER SLIPPING

erscheint, sind mit hoher Wahrscheinlichkeit die beiden Rollen vertauscht. Glatte Rolle Links, gerillte Rolle rechts montieren !

Prestabilizer roller [6], move sensor roller [10]

prestabilizer roller cover [8]# (left-hand side, he light barrier) and move sensor roller cover [12] (right-hand side, near the tape scissors (2 Allen screws No. 3 each).
Remove prestabilizer and move sensor rollers (1 Allen

screw No. 3 each).
Insert the new prestabilizer roller [6] (smooth surface) Insert the new prestabilizer roller [6] (smooth surface) on the left and the move sensor roller [10] (grooved) on the right, together with the roller drivers [7]# and [11]#. Watch out for correct orientation of the rollers: The recess in the roller hub must point <u>upwards</u>.

• For 1/2" and 1/4" recorders: 1 screw M4 x 14 each. Insert the prestabilizer roller cover [8]#:

• For 1/2" recorders: 2 screws M4 x 20 with a "banana"— shaped 1/2" adapter.

shaped 1/2" adapter.
For 1/4" recorders: 2 screws M4 x 14.
Insert the move sensor roller cover [12]:
For 1/2" recorders; The tape scissors is used for 1/4" tape only. In the case of 1/2" recorders it is blocked by a special roller cover. See to it that the projection law of the move sensor roller cover engages. projecting lug of the move sensor roller cover engages into the annular slot of the tape scissors push button. 2 screws M4 x 20 with a "banana"-shaped 1/2"

adapter.
• For 1/4" recorders: 2 screws M4 x 14.

If, after the conversion and during operation, the message

ERR: PINCH ROLLER

should appear, the two rollers are most probably exchanged by mistake. Mount the <a href="mailto:smooth-surfaced">smooth-surfaced</a> roller on the <a href="mailto:left">left</a>, the <a href="mailto:grooved">grooved</a> roller on the <a href="mailto:right">right</a> side of the headblock.

#### Umtenkrotten [1], [2], [4], [5]

Alle vier Umlenkrollen inkl. Rollendeckel werden ausgetauscht. Pro Rolle 1 IS-Schraube Nr. 3.

- Beim Einbau ist darauf zu achten, dass m die <u>schwere</u> (Stahl-)Rolle [2] <u>Links direkt neben dem</u> <u>Kopftrager</u>, mit der <u>planen Fläche nach unten</u> montiert
- drei leichten (Aluminium-)Rollen [1], [4] und [5] mit der <u>Senkung am oberen Rand</u> montiert werden; die vier identischen Rollendeckel richtig auf die Achs-
- stummel aufgesetzt werden (Verdrehschutz). (Die Rollendeckel sind für 1/4"- und 1/2"-Geräte unterschiedlich!)
  - Für 1/2"-Geräte: Pro Rolle 1 Schraube M4 x 20. Für 1/4"-Geräte: Pro Rolle 1 Schraube M4 x 14.

#### Andruckrolle [3]

Gummiandruckrolle austauschen; der Andruckrollendeckel und die zugehörige Schraube wird weiterverwendet. Beim Einbau ist darauf zu achten, dass der <u>schmale Kraqen</u> der Rollen-Nabe unten liegt.

#### Kopfträger [15] und Bandabhebebolzen [14]

- Kopfträger [15] ausbauen (3 IS-Schrauben Nr. 3 durch Lö-
- cher in den Abdeckungen zugänglich). Bandabhebebolzen [14] austauschen (1 IS-Schraube# Nr. 3); die zugehörige Schraube wird weiterverwendet. Bandabhebebolzen Beim Einbau ist darauf zu achten, dass der Stahlstift in das zugehörige Loch eingeführt wird. Neuen Kopftrager einsetzen, Schrauben festdrehen.

#### Klebeschiene

- Klebeschiene mit zwei M3-Schrauben (IS-Schraubendreher Nr. 2) am Klebeschienen-Untersatz befestigen.

  • Die zwei Enden der Biegefeder in den seitlichen
- Schlitz der Unterseite des Klebeschienen-Untersatzes einführen.
- Klebeschiene von links nach rechts über den Rahmen des LC-Displays schieben.
- Klebeschiene kann auch ohne Untersatz an Stelle der bisherigen Klebeschiene auf der Laufwerkabdeckung montiert werden).

#### Guide rollers [1], [2], [4], [5]

All guide rollers and all guide roller covers (4 each) are replaced. 1 Allen screw No. 3 for each roller.

Please note during reinstallation procedure:

That the heavy (steel) roller [1] is installed directly

beside the headblock, on its left, with the even flange

pointing <u>downwards;</u>
That the three <u>light</u> (aluminium) rollers [1], [4], and

- [5] are inserted with the <u>recess at the upper edge</u>;
  That the four roller covers protected against orientation confusion - are mounted correctly on the spindles.

  (The covers are different for 1/4" and 1/2" recorders.)

  For 1/2" recorders: 1 screw M4 x 20 for each roller.

  For 1/4" recorders: 1 screw M4 x 14 for each roller.

Finch roller PINCH ROLLER MUST BE REMOVED Exchange the rubber pinch roller; the pinch roller cover and the corresponding screw are reused.

Please note during reinstallation procedure that the narrow collar of the roller hub is pointing downwards.

#### Headblock [15] and tape lifter bolt [14]

Remove headblock [15] (3 Allen screws No. 3, accessible %hrough holes in the covers).
Exchange tape lifter bolt [14] (1 Allen screw# No..3);

the corresponding screw is reused.

Please note during reinstallation procedure that the steel pin is inserted in the approriate hole.

Insert the new headblock, tighten the screws.

#### Splicing block

- m Fix the splicing block with two M3 screws (Allen key
- No. 2) to the splicing block adapter.

  Insert both ends of the steel wire spring into the lateral slot on the bottom side of the splicing block adapter.

adapter.

Slide the splicing block - from the left to the right - onto the frame of the LC display.

(The splicing block may also be mounted - without the adapter - instead of the previous splicing block on the tape transport cover).

Prepared and edited by

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# STUDER EDITECH CORPORATION PROFESSIONAL PRODUCTS LIMITED WARRANTY IN THE UNITED STATES

If within twelve (12) months of delivery of a new product (the "Equipment") to the Customer, any defect shall appear therein which is due to a failure of material or workmanship, Studer Editech Corporation (SEC) shall correct the defect at its expense; provided the Customer gives notice to SEC of the defect promptly upon discovery. The obligation of SEC hereunder shall not extend to any defects that, in SEC's reasonable opinion, are due to normal wear and tear, accident, misuse, failure to maintain or to any Equipment which the Customer has attempted to repair or have repaired by any third party. SEC may require the Customer to return the Equipment alleged to be defective freight prepaid. Alternatively, if to suit the Customer's convenience, SEC agrees to correct any defect for which SEC is responsible by doing the remedial work on the Customer's premises, SEC may make a reasonable charge for labor and for incidental expenses, such as travel expenses for service personnel, in which case the Customer shall make it possible for the work to be performed during normal working hours. The foregoing provisions shall not apply in the case of any subsystem or component incorporated into the Equipment which is not manufactured by a related supplier of SEC, except for limited warranty specifically provided by such manufacturer to the Customer, but not to exceed (12) months from date of delivery.

Future hardware and/or software updates may be offered to the Customer for a reasonable charge, as determined by SEC. If an update is necessary, as determined by SEC, then such update may be provided free of charge at the option of SEC, except that the Customer shall pay all travel related expenses for any such free issue update. Advance warranty replacement of parts may be provided at the option of SEC, subject to credit approval and open account status.

DISCLAIMER: The warranty contained above hereof is in lieu of all other warranties, express or implied. The Customer that it is relying on SEC's skill or judgment to select or furnish goods suitable for any particular purpose, and there shall be no implied warranty of merchantability or fitness for any particular purpose.

LIMITATION OF LIABILITY: In no event shall SEC be liable for any special, indirect, incidental or consequential damages, or for any damages which exceed the purchase price to the Customer of the equipment under any circumstances whatsoever. The Equipment is not consumer goods but intended for professional commercial applications.

(Over)

## OUT OF WARRANTY REPAIR/REPLACEMENT

A replacement part may be shipped to you prior to the receipt of the defective part by Studer Editech Corporation (SEC). Please contact us regarding exchange costs on all items.

Replacement parts will be sent at the full new part price plus shipping. When the defective items are received by SEC, a partial credit will be issued for the parts only, less shipping charges.

## For a part to be accepted for exchange, the following conditions must be met:

- The defective part must be shipped to SEC prepaid, and must be received by us within 30 days of the billing date of the replacement part.
- · All parts must be returned with a clear statement describing defects.
- ► The defective part must be in repairable condition, and will be inspected for modifications or damage before credit is issued. Acceptability of the defective part for exchange credit will be totally at our discretion.

Parts not accepted for exchange will be repaired (if possible) and returned to the sender. On receipt of the repaired part, the sender must then return the replacement part within two weeks of the billing date of the repair. Parts not accepted for repair will be returned to the sender, and the sender must either pay the full part price or return the replacement part for credit. No credit will be issued for shipping.

Repair costs include labor, tax, parts, and return shipping charges. If an estimate is required, please include a note stating so. Also, indicate desired return shipping method (air, UPS, etc.)

If the original replacement parts are returned, full credit, less shipping, will be issued, provided a note is included stating that these are the original, non defective items, and they pass inspection.

Note! All information in this Out of Warranty Repair/Replacement statement is subject to change without notice.

STUDIER N. Y N 10036 1120 AVE OF THE AMEN 807-0377 TEL 212 626 6734 NAN HEBEL THOR THORSTEINSSON MOUNTING INSTRUCTIONS

A820 CONVERSION

OPTION 21.820.496.00 UMRUSTSATZ VON 1/4" TC 2-SPUR AUF 1/2" TC 2-SPUR

OPTION 21.820.497.00 UMRUSTSATZ VON 1/2" 2-SPUR/STEREO AUF 1/4" 2-SPUR/STEREO, 0,75 mm TRENNSPUR

OPTION 21.820.498.00 UMRUSTSATZ VON 1/2" 2-SPUR/STEREO AUF 1/4" 2-SPUR/STEREO, 2 mm TRENNSPUR

OPTION 21.820.499.00 UMRUSTSATZ VON 1/4" 2-SPUR/STEREO AUF 1/2" 2-SPUR/STEREO

OPTION 21.820.496.00 CONVERSION KIT FROM 1/4" TC 2-TRACK to 1/2" TC 2-TRACK

OPTION 21.820.497.00 CONVERSION KIT FROM 1/2" 2-TRACK/STEREO TO 1/4" 2-TRACK/STEREO, 0.75 mm TRACK SEPARATION

OPTION 21.820.498.00 CONVERSION KIT FROM 1/2" 2-TRACK/STEREO TO 1/4" 2-TRACK/STEREO, 2 mm TRACK SEPARATION

OPTION 21.820.499.00 CONVERSION KIT 1/4" 2-TRACK/STEREO TO 1/2" 2-TRACK/STEREO

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## UMRUST-KITS

#### enthaltend:

Option 21.820.496.00 Option 21.820.497.00 Option 21,820,498,00 Option 21.820.499.00 1.013.341.02 21.51.2354 2 2 2 2 2 2 3 11 11 Distanzscheibe O,6 mm Senkschraube IS, M3  $\times$   $\delta$ Senkschraube spez. M4  $\times$  14 1.010.036.21 1.010.040.21 1.013.347.00 8 Senkschraube spez. M4 x 20 Dreizack-(Cine-) Adapter 1/4" 1.013.347.00
Ropitr. A820-2 IC 1/2" 1.050.122.00
Kopitr. A820-2/2 1/4" 1.050.103.81
Kopitr. A820-2/2 1/4" 1.050.121.81
Kopitr. A820-2/2 1/4" 1.050.121.81
Kopitr. A820-2/2 1/2" 1.050.121.81 2 2 1.050.121.81 1.820.110.05 Abdeckung Vorberuniqungsrolle Abdeckung Tachorolle 1/4" Abdeckung Tachorolle 1/2" Zwischenstück 1/2" ("Banane") Klebeschiene 1/4" Klebeschiene 1/2" 1 1.820.110.06 1.820.110.15 1.820.110.14 1.820.110.18 1.820.110.12 Klebeschienen-Untersatz Biegeteder zu klebeschiene Abhebebolzen kul. 1/4" Abhebebolzen kul. 1/2" 1.820.110.16 1.820.121.00 1.820.122.00 1 Führungsrolle (schwer) 1/4"
Führungsrolle (schwer) 1/2"
Führungsrolle (leicht) 1/4"
Führungsrolle (leicht) 1/2"
Rollendeckel 1/4"
Rollendeckel 1/2" 1 1.820.400.01 1.820.410.01 1 3 3 1.820.410.02 3 3 1.820.400.05 1.820.410.05 4 Vorber.-rolle (glatt) 1/4"
Vorber.-rolle (glatt) 1/2"
Tachorolle (gerillt) 1/4"
Tachorolle (gerillt) 1/2"
Rollenmitnehmer 1 1 1.820.400.03 1.820.410.03 1.820.400.04 1.820.410.04 1 2 1 2 1.820.400.06 1.820.420.00 1.820.430.00 10.27.0321 2 2 Andruckrolle montiert 1/4° Andruckrolle montiert 1/2° Einbauanleitung

#### CONVERSION KITS

consisting of:

Option 21.820.496.00

Uption 21,820,497,00 Option 21,820,498.00 Option 21.820.499.00 Spacer disc 0.6 mm

Countersunk Allen screw M3 x 6

Countersunk spec. screw M4 x 14 1.010.036.21/
Countersunk spec. screw M4 x 20 1.010.040.21

Three-pronged adapter 1/4"

Precision adapter NAB 1/2"

Headblock A820-2 TC 1/2"

Headblock A820-0.75, 2CH LK, 1/4"

Headblock A820-2/2 1/4"

Headblock A820-2/2 1/4"

Headblock A820-2/2 1/2"

Cover prestabilizer roller

1.013.341.02/
1.010.36.21/
1.013.347.00/
1.050.122.00

1.050.122.00

1.050.123.81 12 1.013.341.02 4 11 2 V 12 Headblock A820-2/2 1/2"
Cover prestabilizer roller
Cover move roller 1/4"
Cover move roller 1/2"
Adapter 1/2" ("banana"-shaped)
Splicing block 1/4"
Splicing block 1/2"
Splicing block adapter
Wire spring to splicing block
Tape lifter bolt cpl. 1/4"
Tabe lifter bolt cpl. 1/2"
Guide roller (heavy) 1/2"
Guide roller (light) 1/4"
Guide roller (light) 1/4" 4 1.820.110.05 1.820.110.06V 1.820.110.15 1.820.110.14 1.820.110.18V 1.820.110.12 1.820.110.13 1.820.110.16 1 1.820.121.00 4 1.820.122.00 1.820.400.01 u 1.820.410.01 1.820.400.02 3 3 Guide roller (light) 1/4"
Guide roller (light) 1/2"
Roller cover 1/4"
Roller cover 1/2"
Prest. roller (smooth) 1/4"
Prest. roller (smooth) 1/2"
Move roller (grooved) 1/4"
Move roller (grooved) 1/2"
Poller criver 1.820.410.02 1.820.400.05 3 1.820.410.05 1.820.410.03 1.820.400.048 1.820.410.04 N 4 Roller driver Pinch roller compl. 1/4" Pinch roller compl. 1/2" 1.820.400.06 1.820.420.00 2 5 1.820.430.00 10.27.0321 Instruction sheet

#### STITUTOYER

#### Anwendung

Zur Umrüstung von Bandmaschinen STUDER A820: • von 1/4" TC 2-Spur auf 1/2" TC 2-Spur:

- Nr. 21.820.496.00
- von 1/2" 2-Spur/Stereo auf 1/4" 2-Spur/Stereo, ,75 mm Trennspur: Nr. 21.820.497.00
- 0,75 mm Trennspur:

  Nr. 21.020.-7...

  Nr. 21.020.-7...

  Nr. 21.820.498.00 2 mm Trennspur:
- von 1/4" 2-Spur/Stereo auf 1/2" 2-Spur/Stereo: Nr. 21.820.499.00

#### Application

For converting STUDER A820 tape recorders: # from 1/4" TC 2-track to 1/2" TC 2-track:

- No. 21.820.496.00
- # from 1/2" 2-track/stereo to 1/4" 2-track/stereo Nr. 21.820.497.00
- 0,75 mm track separation: Nr. 21.8 from 1/2" 2-track/stereo to 1/4" 2-track/stereo
- Nr. 21.820.498.00 2 mm track separation:
- from 1/4" 2-track/stereo to 1/2" 2-track/stereo:

Nr. 21.820.499.00

#### EINBAU

#### Benötigtes Werkzeug

1 Inbus-Schraubendreher Nr. 2,5 1 Inbus-Schraubendreher Nr. 3 (10.258.003.09) (10.258.003.10)

#### Vorberei tungen

- Bauteile, die sowohl für 1/4"- als auch für 1/2"-Geräte identisch sind, werden im folgenden Text mit "#" gekennzeichnet !
- ersten Einschalten nach dem Umbau des Gerätes wer-Beim den die Audio- und Bandzugparameter automatisch ange-passt. Das Gerät schaltet selbsttätig: mit einem 1/2"-Kopfträger auf Bandsorte "B", mit einem 1/4"-Kopfträger auf Bandsorte "A".

Falls das Gerat nicht schon mit dem neuen Kopfträger auf die zweite Bandsorte eingemessen war, werden die De-tault-Parameter geladen.

Es wird empfohlen:

- die Audiokanäle einzumessen (siehe Kapitel 4.2 4.4, Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110).
- die Bandzüge zu kontrollieren und gegebenenfalls neu einzustellen (siehe Kapitel 3.3.8, Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110).
   Ebenfalls beim ersten Einschalten nach dem Umbau des Gerätes wird die Programmierung der Tasten automatisch anderen der Lenien und der Lenien der Lenien
- gepasst, das LC-Display meldet:

WARN: DEFAULT KEYS LOADED

Falls die vorherige Programmierung der Tasten nach dem Umbau erhalten bleiben soll, ist die Funktion Nr. 246 "SAVE KEY SETTING" einzuschalten, d.h. auf "YES". (Siehe Kapitel 2.6, Bedienungs- und Serviceanleitung A820, Bestell-Nr. 10.27.0110.)

#### Distanzscheiben auf den Bremsrollen

Bei A820-Tonbandgeräten mit Serie-Nummern kleiner als 1100 wurden zum Teit die Distanzscheiben 1.013.341.02 (0,6 mm) nicht eingebaut. Für Betrieb mit 1/2°-Spulen werden diese Distanzscheiben bendtigt. Sie sind für den Betrieb mit 1/4°-Spulen ebenfalls geeignet, können also dauernd im Gerat bleiben.

- Laufwerkabdeckung oben, hintere Hälfte, entfernen (7 IS-
- Schrauben Nr. 2,5). Spulenadapter durch Druck auf den äusseren Ring des
- Wickeltellers ausklinken, demontieren. Bei jedem Wickelteller 3 IS-Schrauben (Nr. 3) lösen, Wickelteller abheben.
- e <u>Bremsbelag</u> (rótliches Gewebe) <u>nicht berühren</u>! e Distanzscheibe auf Bremsrolle legen, ausser, wenn schon
- a Wickelteller, Laufwerkabdeckung und Spulenadapter wieder einbauen.

#### INSTALLATION

#### Required tools

Allen screwdriver . (10.258.003.09) 1 Allen screwdriver size 3.0 (10.258.003.10)

#### Preparations

- Elements being identical for both 1/4° and 1/2° recorders are marked with "#" in the following text.
- the first power on after the conversion, the audio and tape deck parameters are adapted automatically. The recorder selects: tape type "B" if it is equipped with a 1/2" headblock, tape type "A" if it is equipped with a 1/4" headblock.
  - the recorder has not been aligned for the new headblock, the default parameters are loaded.

#### It is recommended:

- To realign the audio channels (refer to Sections 4.2 -4.4, Operating and No. 10.27.0230), and Operating and Service Instructions A820,
- No. 10.27.0230), and
   To check the tape tensions and to adjust them, if necessary (refer to Section 3.3.8, Operating and Service Instructions A820, Order No. 10.27.0230).
   Also at the first power on after the conversion, the programming of the keys is matched automatically. The LC display indicates.
- display indicates:

WARN: DEFAULT KEYS LOADED

If the previous programming of the keys is to be saved after the conversion, the function No. 246 "SAVE KEY SETTING" must be switched on, i.e. to "YES". (Refer to section 2.6, Operating and service Instructions A820, Order No. 10.27.0230.)

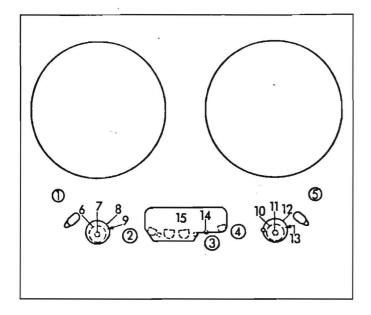
#### Spacer discs on brake rollers

A820 tape recorders with serial numbers below 1'100 have partly not been equipped with the 0.6 mm spacer 1.013.341.02 . However, for operation with 1/2" disc 341.02 . However, for operation with 1/2" r spacers are necessary. They are also suitable these for operation with 1/4" reels, so they can be permanently installed.

- Remove tape transport cover, rear section (7 Allen screws No. 2.5).
   Disengage the reel adapters by pressing the outer ring
- of the spindles downwards.

  Loosen 3 Allen screws (No. 3) at either spindle and lift the spindles off.

  Do not touch the brake linings (reddish fabric).
- Lay a spacer disc onto each brake roller except if they are already inserted.
  Reinstall the spindles and the tape transport cover as . Reinstall
- well as the reel adapters.



#### Vorberuhigungsrolle [6], Tachorolle [10]

- Abdeckung [8]# der Vorberuhigungsrolle (links, bei der Lichtschranke) sowie Abdeckung [12] der Tachorolle (rechts, bei der Bandschere) ausbauen (je 2 IS-Schrauben Nr. 3).
- Vorberuhigungs- und Tachorolle ausbauen (je 1 IS-Schraube Nr. 3).
- Vorberunigungsrolle (6) (glatt) links, rolle [10] (gerillt) rechts, mit Rollenmitnehmern [7]# und [11]# einbauen. Auf richtige Lage der Rollen achten ! Die Senkung in der Rollen-Nabe muss oben liegen.
- Für 1/2"- und für 1/4"-Geräte: je 1 Schraube M4 x 14.
- Abdeckung [8]# der Vorberuhigungsrolle montieren:
   Für 1/2"-Geräte: 2 Schrauben M4 x 20 und Zwischenstück 1/2" ("Banane").
- Für 1/4"-Geräte: 2 Schrauben M4 x 14.
   Abdeckung [12] der Tachorolle montieren:
   Für 1/2"-Geräte: Die Bandschere ist nur für 1/4"-Band verwendbar, sie wird bei 1/2"-Geräten durch eine speverwendbar, sie wird bei 1/2"-Geräten durch eine spezielle Tachorollen-Abdeckung blockiert. Bei der Montage ist darauf zu achten, dass der Verriegelungslappen der Tachorollen-Abdeckung in die Ringnut im Druckknopf für die Bandschere eingreift; 2 Schrauben M4 x 20 und Zwischenstück 1/2" ("Banane").

  • Für 1/4"-Geräte: 2 Schrauben M4 x 14.
- Wenn nach dem Umbau im Betrieb des Gerätes die Meldung

ERR: PINCH ROLLER SLIPPING

sind mit hoher Wahrscheinlichkeit die beiden erscheint, vertauscht. Glatte Rolle Links, gerilite Rolle rechts montieren !

#### Prestabilizer roller [6], move sensor roller [10]

- Remove prestabilizer roller cover [8]# (left-hand side, near the light barrier) and move sensor roller cover [12] (right-hand side, near the tape scissors (2 Allen screws No. 3 each).
- Remove prestabilizer and move sensor rollers (1 Allen screw No. 3 each).
- m Insert the new prestabilizer roller [6] (smooth surface)

- Insert the new prestabilizer roller [6] (smooth surface) on the left and the move sensor roller [10] (grooved) on the right, together with the roller drivers [7]# and [11]#. Watch out for correct orientation of the rollers: The recess in the roller hub must point upwards.

   For 1/2\* and 1/4\* recorders: 1 screw M4 x 14 each.

   Insert the prestabilizer roller cover [8]#:

   For 1/2\* recorders: 2 screws M4 x 20 with a "banana"-shaped 1/2" adapter.
   For 1/4\* recorders: 2 screws M4 x 14.

   Insert the move sensor roller cover [12]:

   For 1/2\* recorders; The tape scissors is used for 1/4\* tape only. In the case of 1/2\* recorders it is blocked by a special roller cover. See to it that the projecting lug of the move sensor roller cover engages into the annular slot of the tape scissors push button. 2 screws M4 x 20 with a "banana"-shaped 1/2" adapter.
- adapter. For  $1/4^{\circ}$  recorders: 2 screws M4 x 14. If, after the conversion and during operation, the message

ERR: PINCH ROLLER SLIPPING

should appear, the two rollers are most probably exchanged by mistake. Mount the <a href="mailto:smooth-surfaced">smooth-surfaced</a> roller on the <a href="mailto:left">left</a>, the <a href="mailto:grooved">grooved</a> roller on the <a href="mailto:right">right</a> side of the headblock.

#### Umlenkrotlen [1], [2], [4], [5]

Alle vier Umlenkrollen inkl. Rollendeckel werden ausgetauscht. Pro Rolle 1 IS-Schraube Nr. 3.

- Beim Einbau ist darauf zu achten, dass m die <u>schwere</u> (Stahl-)Rolle [2] <u>links direkt neben</u> <u>Kopftrager</u>, mit der <u>planen Fläche nach unten</u> mont wird:
- drei leichten (Aluminium-)Rollen [1], [4] und [5] mit der <u>Senkung am oberen Rand</u> montiert werden; die vier identischen Rollendeckel richtig auf die Achs-
- stummel aufgesetzt werden (Verdrehschutz). (Die Rollendeckel sind für 1/4"- und 1/2"-Geräte unterschiedlich!)

   Für 1/2"-Geräte: Pro Rolle 1 Schraube M4 x 20.

   Für 1/4"-Geräte: Pro Rolle 1 Schraube M4 x 14.

#### Andruckrolle [3]

Gummiandruckrolle austauschen; der Andruckrollendeckel und die zugehörige Schraube wird weiterverwendet. Beim Einbau ist darauf zu achten, dass der <u>schmale Kragen</u> der Rollen-Nabe <u>unten</u> liegt.

#### Kopfträger [15] und Bandabhebebolzen [14]

- Kopfträger [15] ausbauen (3 IS-Schrauben Nr. 3 durch Löcher in den Abdeckungen zugänglich).

  Bandabhebebolzen [14] austauschen (1 IS-Schraube#
- 3); die zugehörige Schraube wird weiterverwendet. Beim Einbau ist darauf zu achten, dass der Stahlstift in das zugehörige Loch eingeführt wird.
- Neuen Kopftrager einsetzen, Schrauben festdrehen.

#### Klebeschiene

- Klebeschiene mit zwei M3-Schrauben (IS-Schraubendreher Nr. 2) am Klebeschienen-Untersatz befestigen.
- Die zwei Enden der Biegefeder in den seitlichen Schlitz der Unterseite des Klebeschienen-Untersatzes ein-
- Klebeschiene von links nach rechts über den Rahmen des LC-Displays schieben.
- Klebeschiene kann auch ohne Untersatz an Stelle (Die der bisherigen Klebeschiene auf der Laufwerkabdeckung montiert werden).

Guide rollers [1], [2], [4], [5]

All guide rollers and all guide roller covers (4 each) are replaced. 1 Allen screw No. 3 for each roller.
Please note during reinstallation procedure:

That the heavy (steel) roller [1] is installed directly

- beside the headblock, on its left, with the even flange
- pointing <u>downwards;</u>
  That the three <u>light</u> (aluminium) rollers [1], [4],
- [5] are inserted with the recess at the upper edge;
  That the four roller covers protected against orientation confusion are mounted correctly on the spindles.
  (The covers are different for 1/4" and 1/2" recorders.)

  For 1/2" recorders: 1 screw M4 x 20 for each roller.

  For 1/4" recorders: 1 screw M4 x 14 for each roller.

#### Pinch roller

Exchange the rubber pinch roller; the pinch roller cover and the corresponding screw are reused.

Please note during reinstallation procedure that the narrow collar of the roller hub is pointing downwards.

#### Headblock [15] and tape lifter bolt [14]

- m Remove headblock [15] (3 Allen screws No. 3, accessible through holes in the covers).

  Exchange tape lifter bolt [14] (1 Allen screw# No..3);
- the corresponding screw is reused.

  Please note during reinstallation procedure that the steel pin is inserted in the approriate hole.
- Insert the new headblock, tighten the screws.

#### Splicing block

- Fix the splicing block with two M3 screws (Allen key No. 2) to the splicing block adapter.
   Insert both ends of the steel wire spring into the lateral slot on the bottom side of the splicing block

adapter.

Slide the splicing block - from the left to the right - onto the frame of the LC display.

(The splicing block may also be mounted - without the adapter - instead of the previous splicing block on the tape transport cover).

Prepared and edited by

STUDER REVOX TECHNICAL DOCUMENTATION ALLBACHSTRASS 10 CH-8105 Regensgorf-Zürich Switzerland

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## Up-date to the operating and service manual A820-2CH

## Operation

- 1 Menu tree for the latest software version 02/93.
- 2 Description of new functions.

## **UP-DATE Master Section**

| Serial Remote Interface   | 1.820.729.25 |
|---------------------------|--------------|
| Parallel Remote Interface | 1.820.738.85 |
| SMPTE/EBU Bus Interface   | 1.820.751.21 |
| Master Serial Interface   | 1.820.753.82 |
| Tape Deck Display Driver  | 1.820.768.84 |
| Tape Deck Display Driver  | 1.820.768.85 |
| MP-Unit Master            |              |
| Display Connection Board  | 1.820.233.83 |

## **UP-DATE Tape Deck Section**

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| Spooling Motor Driver          | 1.820.759.84 |
| Spooling Motor Driver          | 1.820.759.85 |
| Spooling Motor Control         | 1.820.760.81 |
| Spooling Motor Control         | 1.820.760.82 |
| Tape Deck Periphery Control    | 1.820.762.81 |
| Tape Deck Serial Interface     | 1.820.763.83 |
| Capstan Control Unit           | 1.820.764.28 |
| Move Sensor                    | 1.820.770.82 |
| Motor Tacho                    | 1.820.771.84 |
| Tape Tension Sensor PCB        | 1.820.772.81 |
| Tape Lifter Control            | 1.820.773.83 |
| Capstan Motor Drive Amplifier  | 1.820.774.27 |
| Spooling Motor Drive Amplifier | 1.820.775.82 |
| Spooling Motor Supply          | 1.820.777.84 |
| MP Unit Tape Deck Control MCH  | 1.820.785.25 |
| Opto Sensor                    |              |
| Basis Board Tape Deck          | 1.820.701.82 |
| Tape Deck Counter/Timer        | 1.820.823.00 |
| Stabilizer                     |              |
| Stabilizer ±26V/1A             |              |
| Fuse Supply Failure Detector   |              |

## **UP-DATE Audio Section**

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|----|--|-----------------|
|    | Level Diagrams, Line Amplifier   |                 |
|    | Line Amplifier with Trafo  | 1.820.814.8     |
|    | Line Amplifier Trafoless   | 1.820.715.82    |
|    | Line Amplifier Trafoless   |                 |
|    | Line Output Amplifier PCB  |                 |
|    | Reproduce Preamplifier 1CH   |                 |
|    | Reproduce Preamplifier 2CH   |                 |
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|    | Reproduce Amplifier  |                 |
|    | Level Diagrams, Record Amplifier   |                 |
|    | Record Amplifier HX-PRO  | 1 820 811 81    |
|    | Adaption Board   | for 1.318 Heads |
|    | HF Driver  |                 |
|    | Noise Reduction System Control   |                 |
|    | Time Code Read-Write Unit  |                 |
|    | Code Delay Unit  |                 |
|    | Distribution Board   |                 |
|    | Head Assembly Identifier Board   |                 |
|    | Sories Section  Tape Deck Remote Control Cabinet (Parallel)  | 1.328.250.81    |
|    | - Tape Deck Control PCB  |                 |
|    | Tapo Dook Comion to Diministration   |                 |
| 3' | Tape Deck Remote Control Module (Parallel)   | 1 328 255 81    |
|    | - Connectors Board   |                 |
|    | - Connectors Board   | 1.020.207.01    |
|    | Remote Timer/Lap Mode Display  | 1.328.270.81    |
|    | - Stabilizer PCB   | 1.328.213.81    |
|    | - Timer Driver PCB   | 1.328.272.24    |
|    |  |                 |
|    | Remote Control Cabinet (Serial)  | 1.328.210.81    |
|    | Remote Control Module (Serial)   |                 |
|    | - Stabilizer PCB (see under 1.328.270.81)  |                 |
|    | - Remote Control Driver Board  |                 |
|    | - Remote Control Display PCB   |                 |
|    | Tomoto control biopia, i commissioni missioni missioni missioni di control biopia, i commissioni missioni missi | 1.020.212.01    |
|    | Varispeed Conversion Kit (for Parallel Remote Control Only)  | 1.328.253.00    |
|    | Varispeed Control Module   |                 |
|    | Art to be a manage and a management and  | 1 010 760 00    |

Prepared and edited by: Copyr STUDER Professional Audio AG

Technical Documentation

Althardstrasse 30

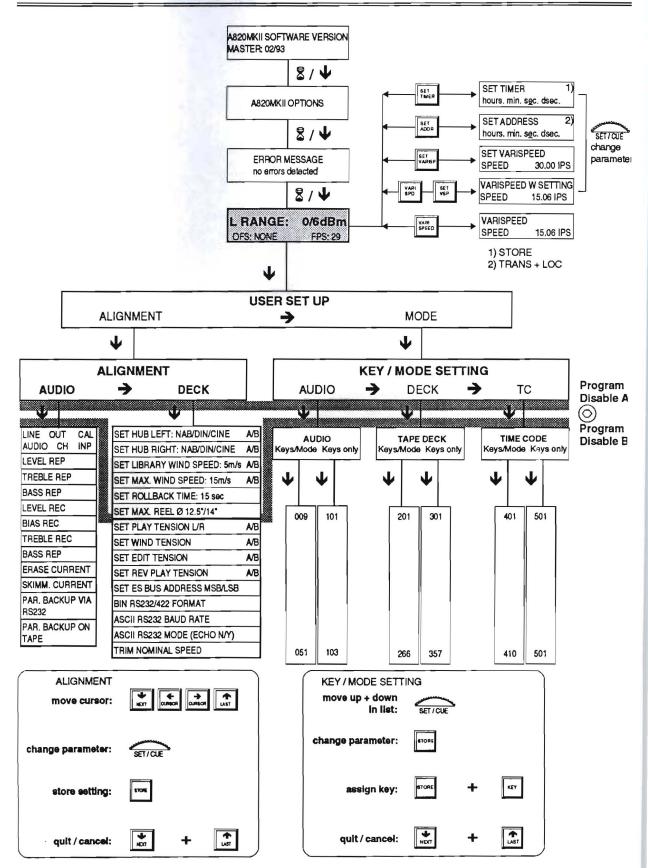
CH-8105 Regensdorf - Switzerland

STUDER is a registered trade mark of STUDER Professional Audio AG, Regensdorf

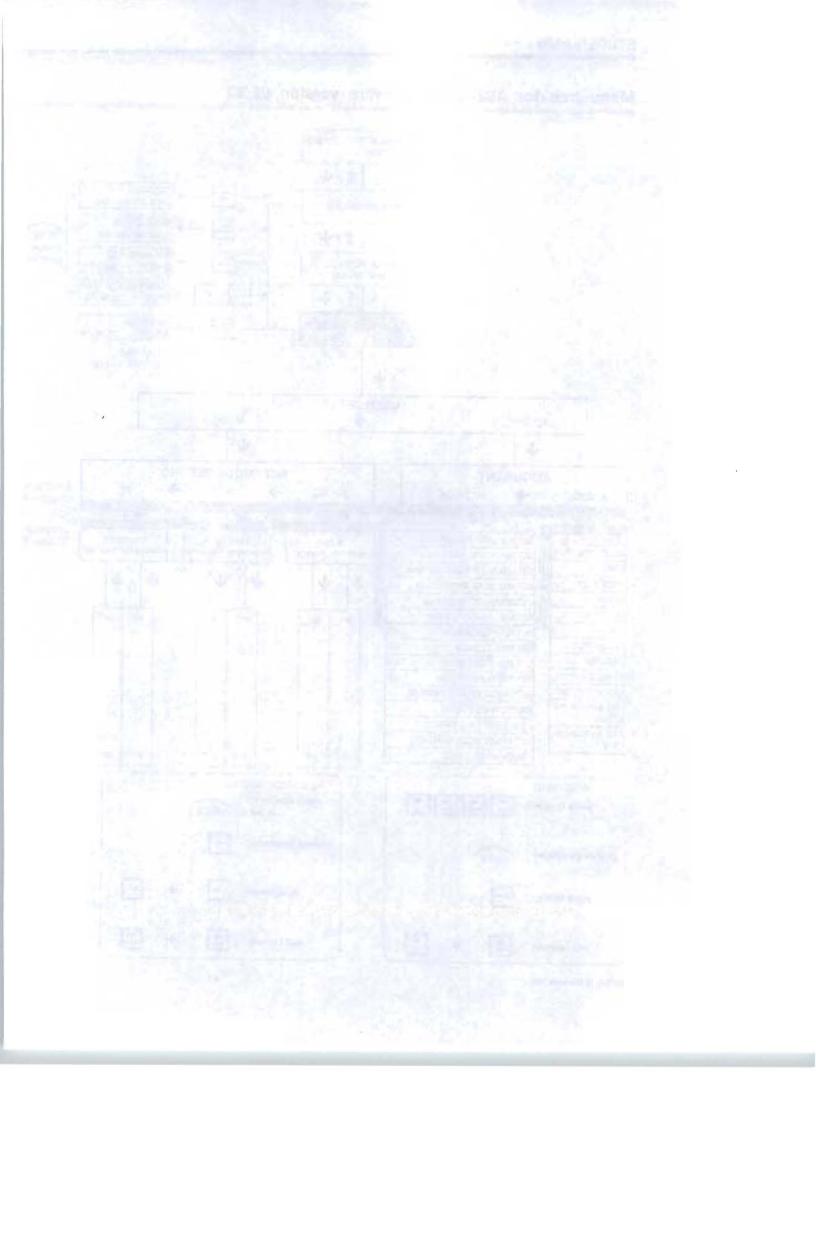
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We reserve the right to make alterations

## Menu tree for A820-2CH software version 02/93



EDITION: 12. November 1993



## Audio Keys/Mode

|     | Addio Reysolitode       | A     |
|-----|-------------------------|-------|
| 009 | LEVEL RANGE 0/6 dBm     | Y/N   |
| 010 | LEVEL RANGE 4/10 dBm    | Y/N   |
| 011 | LEVEL RANGE 8/14 dBm    | Y/N   |
| 012 | LEVEL RANGE 10/16 dBm   | Y/N   |
| 021 | MASTER SAFE             | Y/N   |
| 022 | TAPE A                  | Y/N   |
| 023 | TAPE B                  | Y/N   |
| 024 | TAPE A/B                |       |
| 031 | MONO/STEREO             |       |
| 032 | CCIR/NAB                |       |
| 033 | CIRR/NAB PAR SAME/INDIV |       |
| 034 | REP/SYNC PAR SAME/INDIV |       |
| 041 | AUTO MUTE               | ONOFF |
| 042 | AUTO INPUT A            | Y/N   |
| 043 | AUTO INPUT B            | Y/N   |
| 044 | IN/OUT DELAY            | Y/N   |
| 045 | DOLBY HX PRO            | OWOFF |
| 046 | AUTO LOW PASS           | Y/N   |
| 051 | CH CONTROL PAR/INDIV    | ·     |

## Audio Keys only

| 101 | REHEARSE   | <br> |
|-----|------------|------|
| 102 | SPOT ERASE |      |
| 103 | SKIMMING   |      |

## Time Code Keys/Mode

| 401 | 24 FRAMES/SEC        | Y/N       |
|-----|----------------------|-----------|
| 402 | 25 FRAMES/SEC        | Y/N       |
| 403 | 29.97 FRAMES/SEC     | Y/N       |
| 404 | 30 FRAMES/SEC        | Y/N       |
| 406 | 25/29.97 FRAMES/SEC  |           |
| 407 | 29.97/30 FRAMES/SEC  |           |
| 408 | 24/25/29/30 FRAMES/S | C         |
| 409 | OFFSET 1.2"          | Y/N       |
| 410 | TC MODE              | NORM/SPEC |

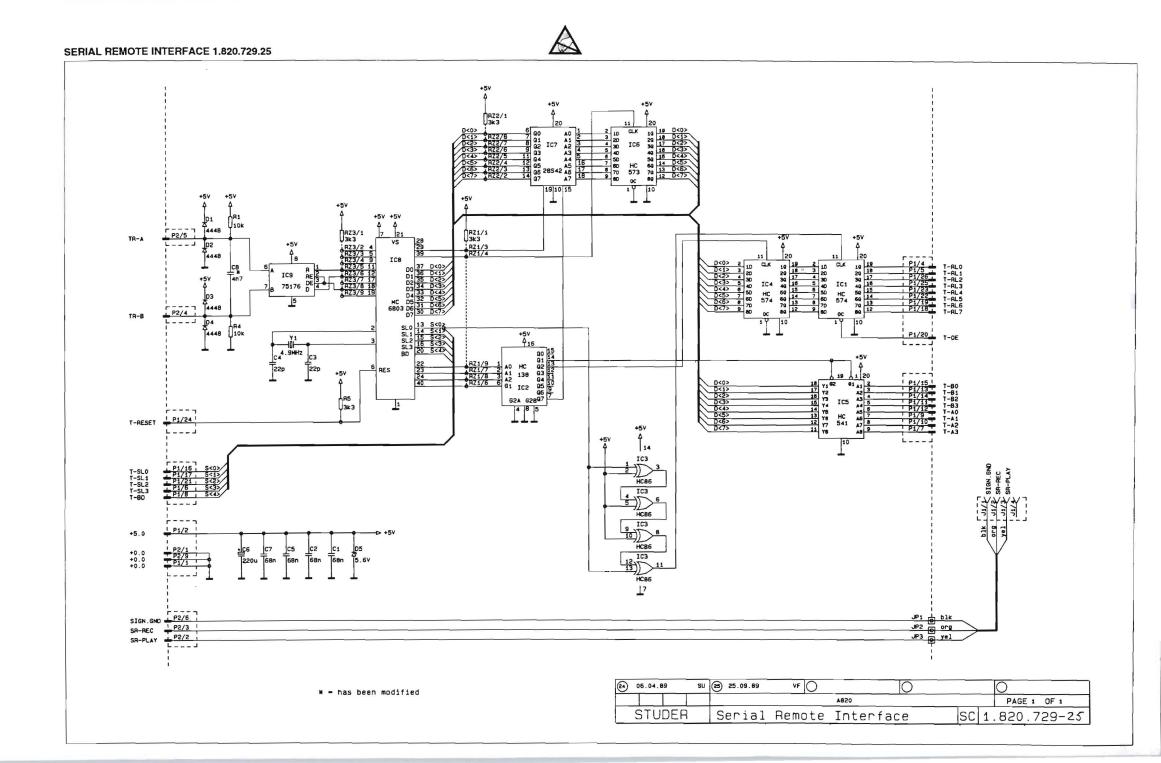
# Time Code Keys only

## Tape Deck Keys/Mode

|     | The Control of the Co |         |
|-----|--|---------|
| 201 | TAPE GUARD A   | NO/RED  |
| 202 | TAPE GUARD B   | NO/STOP |
| 211 | 3.75 IPS   | Y/N     |
| 212 | 7.5 IPS  | Y/N     |
| 213 | 15 IPS   | Y/N     |
| 214 | 30 IPS   | Y/N     |
| 215 | 3.75/7.5 IPS   |         |
| 216 | 7.5/15 IPS   |         |
| 217 | 15/30 IPS  |         |
| 218 | 3.75/7.5/15 IPS  |         |
| 219 | 7.5/15/30 IPS  |         |
| 220 | 3.75/7.5/15/30 IPS   |         |
| 230 | FADER MASTER ENABLE  | Y/N     |
| 231 | FADER A  | Y/N     |
| 232 | FADER B  | Y/N     |
| 233 | FADER C  | Y/N     |
| 234 | FADER D  | Y/N     |
| 241 | VARISPEED %  | Y/N     |
| 242 | VARISPEED HT   | Y/N     |
| 243 | VARISPEED IPS  | Y/N     |
| 244 | VARISPEED % / IPS / HT -"-   |         |
| 245 | VS IND. ENHANCED -"-   | Y/N     |
| 246 | SAVE KEY SETTING   | Y/N     |
| 247 | PROGRAM DISABLE  | A/B     |
| 250 | SHUTTLE IN PLAY  | Y/N     |
| 251 | SHUTTLE MODE   | A/B     |
| 252 | CAPSTAN MODE   | A/B     |
| 253 | WIND MODE  | A/B     |
| 254 | EDIT MODE  | A/B     |
| 255 | REC INDIC MODE   | A/B     |
| 259 | SINGLE LOOP MODE   | A/B     |
| 265 | AUTO LOAD ENABLE   | Y/N     |
| 266 | QUICK START  | Y/N     |

## Tape Deck Keys only

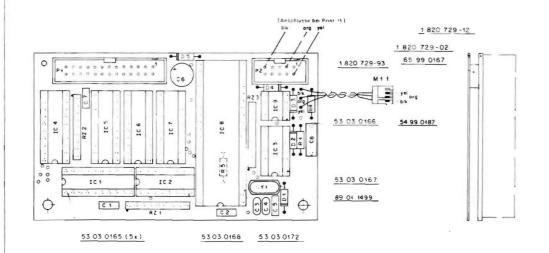
|             | ape beck keys of      | ity     |
|-------------|-----------------------|---------|
| 301         | REWIND                |         |
| 302         | FORWARD               |         |
| 303         | LIBRARY WIND          |         |
| 304         | PLAY                  |         |
| <b>3</b> 05 | REVERSE PLAY          |         |
| 306         | STOP                  |         |
| 307         | RECORD A              |         |
| 308         | RECORD B              |         |
| 309         | EDIT                  |         |
| 310         | сит                   |         |
| 311         | TRANSFER              |         |
| 312         | HOLD                  |         |
| 313         | LOCATE 1              |         |
| 314         | LOCATE 2              |         |
| 315         | LOCATE 3              |         |
| 316         | LOCATE 4              |         |
| 317         | LOCATE 5              |         |
| 318         | LOCATE ZERO           |         |
| 319         | LOC START PLAY        |         |
| 320         | LOC START STOP        |         |
| 321         | LOC START REC         |         |
| 322         | ROLLBACK PLAY         |         |
| 323         | ROLLBACK STOP         |         |
| 324         | ROLLBACK RECORD       |         |
| 325         | BACKSPACE STOP        |         |
| 326         | BACKSPACE PLAY        |         |
| 327         | TAPE DUMP A           |         |
| 328         | TAPE DUMP B           |         |
| 329         | TAPE DUMP C           |         |
| 330         | TAPE DUMP D           |         |
| 332         | LIFTER                |         |
| 334         | LAP/WATCH DISPLAY     |         |
| 335         | RESET TIMER           |         |
| 336         | SET TIMER             |         |
| 337         | SET ADDRESS           |         |
| 338         | SET VARISPEED         | 211/255 |
| 339         | VARISPEED             | ONOFF   |
| 345         | REMOTE A REM CTL ONLY |         |
| 346         | REMOTE B REM+LOCAL    |         |
| 347         | SHUTTLE BAR           |         |
| 348         | UNLOAD                |         |
| 351         | NO FUNCTION           |         |
| 355         | SINGLE LOOP           |         |
| 356         | INSTANT LOOP          |         |
| 357         | INDIANI LOOP          |         |
|             |                       |         |



**UP-DATE** Master Section



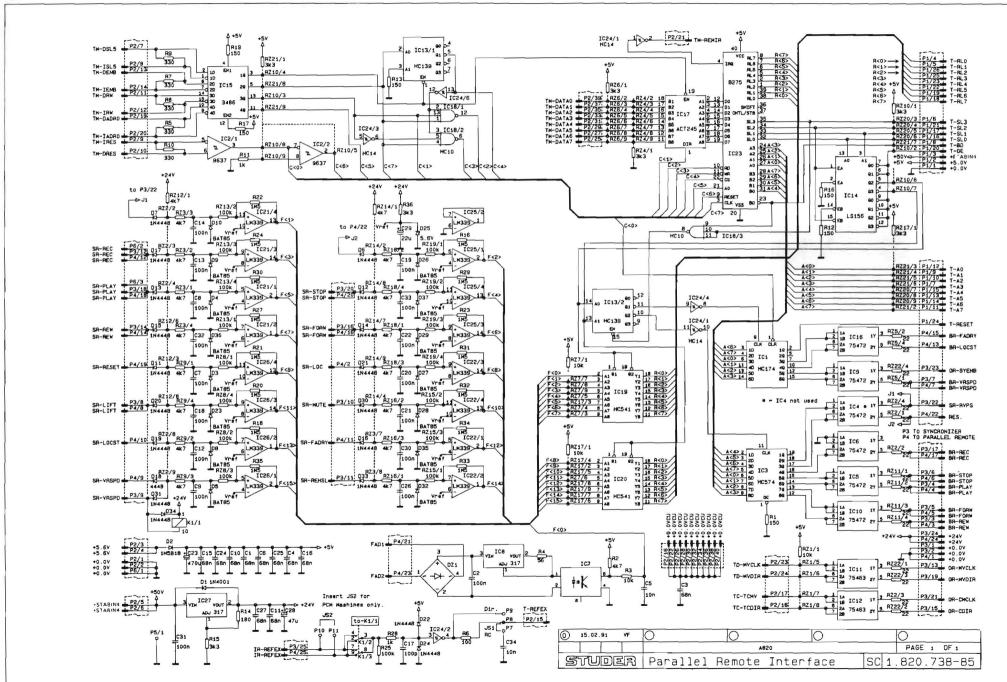
#### SERIAL REMOTE INTERFACE 1.820.729.25



```
Ad .. POS.. ... REF. No... DESCRIPTION...
                                                               59.40.0683 68nF
59.40.0683 68nF
59.45.2220 22pF
59.34.2330 33pF
59.45.2220 22pF
59.34.2330 33pF
59.40.0683 68nF
59.22.3221 220uF
59.40.0683 68nF
59.03.2472 4.7nF
                                                                                                                                                                           10%,
10%,
5%,
5%,
5%,
10%,
20%, 10%,
10%,
                                                                                                                                                                                                                               PETP
CER
CER
CER
CER
PETP
EL
PETP
PETP
                                                                 50.04.0125 184448
50.04.0125 184448
50.04.0125 184448
50.04.0125 184448
50.04.1108 5.6V Z
    20 0....1
20 D....2
20 D....3
20 0....4
20 0....5
                                                                                                                                                                         Fc, ITT, Ses, Ph
Fc, ITT, Ses, Ph
Fc, ITT, Ses, Ph
Fc, ITT, Ses, Ph
BZX83 C 5V6, BZX55 C 5V6, ZPO5.6 ITT, Ses, Ph
                                                       1 50.17.1574 748C 574
2 50.17.1138 748C 138
5 50.17.1086 748C 38
5 50.17.1574 748C 574
5 50.17.1571 748C 571
5 50.17.1571 748C 571
5 50.17.1571 748C 571
5 50.14.1020 TBP28542H
1.820.999.20
1.820.999.20
1.820.999.22
1.820.999.22
1.820.999.22
1.820.999.22
    20 IC....1
20 IC....2
20 IC....3
20 IC....4
20 IC....5
20 IC....7
20 IC....7
21 IC...7
22 IC...7
22 IC...7
23 IC....7
24 IC....7
25 IC....7
                                                                                                                                                                                                                                                                         Ph, Mot, MS, RCA, To, TI
Mot, MS, Ph, RCA, SGS, TI
Mot, MS, Ph, RCA, SGS, TI
Ph, Mot, MS, RCA, To, TI
Ph, Mot, MS, RCA, To, TI
Ph, Mot, RCA, To, TI, SGS
                                                                                                                                                                    ... 74 NC 574
... 74 NC 138
... 74 NC 86
... 74 NC 574
... 74 NC 541
... 74 NC 573
                                                               50.14.0120 | T8P28542N | Softmare 13/45 | 1.820.999.21 | Softmare 50/46 | 1.820.999.22 | Softmare 50/46 | 1.820.999.22 | Softmare 41/87 | Soft
                                                                                                                                                                                                                                                                                                                                  Mot.Hi
YI, MS
                                                               57.11.3103 10 kOhm
57.11.3302 1 kOhm
00.00.0000 not used
57.11.3103 10 kOhm
57.11.3332 3.3 kOhm
                                                              57.88.4332 8*3.3tOhm Hetwork, 8 * 3.3 tOhm, 5t, single line 57.88.4332 8*3.3tOhm Hetwork, 8 * 3.3 tOhm, 5t, single line Hetwork, 8 * 3.3 tOhm, 5t, single line
  (21) 86.12.08 Improved quarz accuracy, extension of autolocater key board.
  (22) 87.07.13 Softmare 29/87 (wrong stroke).
 (24) 89.04.06 Additional connections to Parallel Remote, SR-PLAY, SR-REC
for improved progress time.
  (25) 89.09.25 Improved meise suppression on differential line.
  El-Electrolytic, PETP-Polyester, CER-Ceremic, SAL-Solid Aleminium
MANUFACTURERS: Fe=Ferranti, Ri=Mitacki, ls=Intersil, Not=Notorols,
MS-Mational Samiconductors, Ph=Philips,
RCA=RCA Corporation, SSS-SSS/Atm, St=Studer
TI=Texas lastraments, [o=Topkiba
                                                        1.820.729.00 SERIAL RENOTE INTERFACE
                                                        1.820.729.00 SERIAL RENOTE INTERFACE
                                                       1.820.729.00 SERIAL REMOTE INTERFACE
                                                       1.820.729.00 SERIAL REMOTE INTERFACE
                                                     1.820.729.00 SERIAL REMOTE INTERFACE
                                                       1.820.729.00 SERIAL REMOTE INTERFACE
                                                                                                                                                                                                                                            VF89/09/2525
```

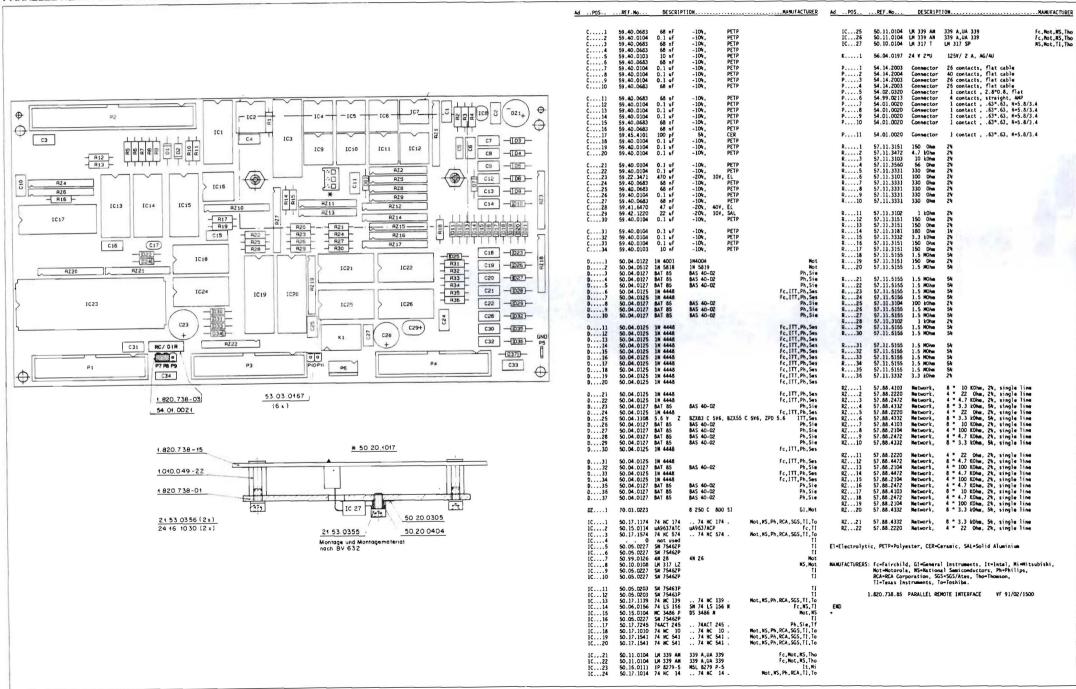


#### PARALLEL REMOTE INTERFACE 1.820.738.85





#### **PARALLEL REMOTE INTERFACE 1.820.738.85**



SMPTE / EBU BUS INTERFACE 1.820.751.21 31 IM-ADRO + 5.0 V C10 122 C9 22 16 9 HC 5 74 4 082 13 02 POR II PORT 2 DB7 18 154 32 IM-DAIA7 1017 DBS 17 DS Z 80 38 6803 DB6 18 10 1- 4006 1C 16 A8 2764 A9 - 5.0 V IM-END P20 8 27 P514 + 50 V ADRI 3.3K RZ1 NMI 1701 + 5,0V PZ5 1013 LS 541 HC 00 T -√-3.3K RZ2 2 CO6H (DATA) 2 CO7H (CONT) 3.3 k RZ 5 M-F10 + 50 V \$ 5.0 V QB7 11 Y8 M-CSL XOLH CSFIO D 2 ... D5 IN 4448 1C12 HC00 IC12 HC 00 + 15v 555 - 2007 4814 + 5.0 V 3.3K RZ 5 CSUART 2000H CSFIO : 4000H 1N 5818 CSL SN 75176 CSUARI RIS IRQI RXD R/W IC 18 Q1 ... Q = 21x 651 S 68450 P10 IXD 3.3K RZ 5 087 15 RXD 51 IC 7 SN 75176 RESET

\* HAS BEEN MODIFIED

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8 .11 . 85 Mil

A 820 Logic Section

SMPTE / EBU Bus Interface

PAGE 1 OF 1

SC 1.820.751.21

1 8.11.85 MI

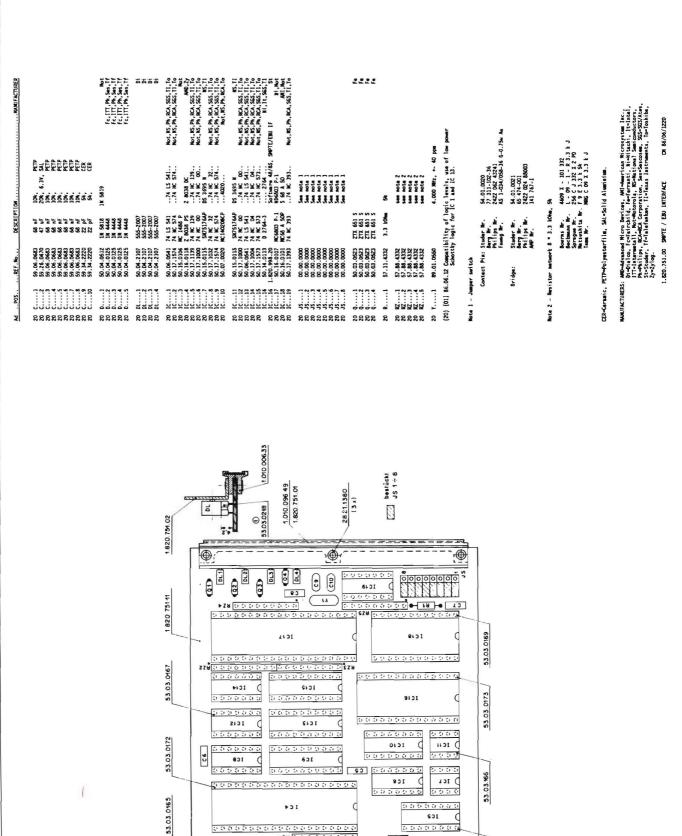
16 HE 00

DCD

IC 19 HC 393 CK L

RZ5





10

1.820.751.21

1.101.001.20

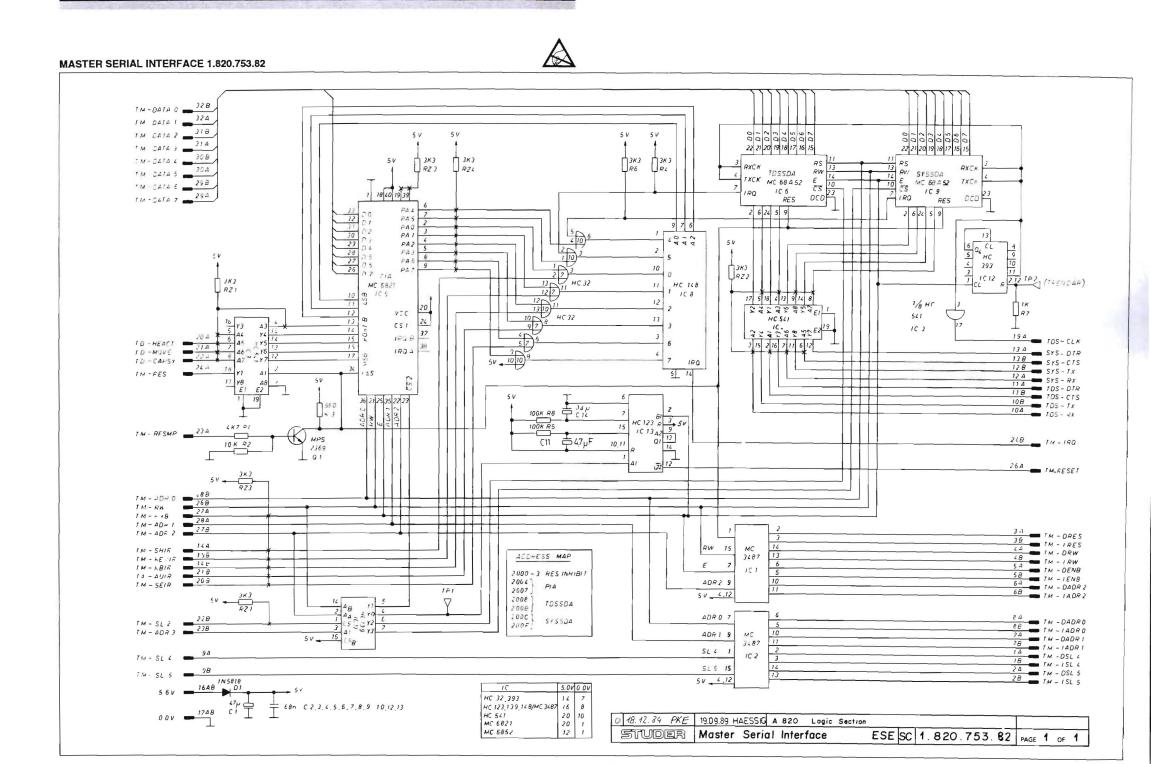
- 10

SMPTE / EBU BUS INTERFACE

53.03.0168

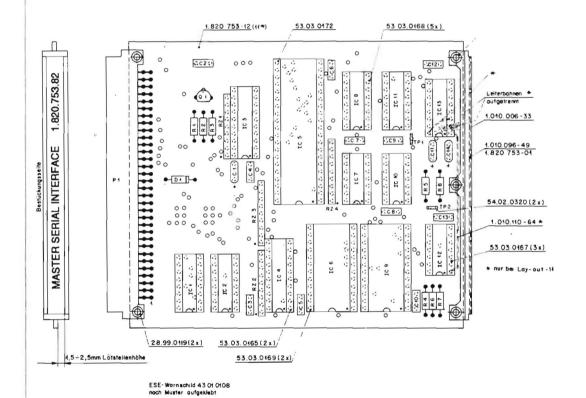
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SMPTE / EBU BUS INTERFACE 1.820.751.21





#### MASTER SERIAL INTERFACE 1.820.753.82

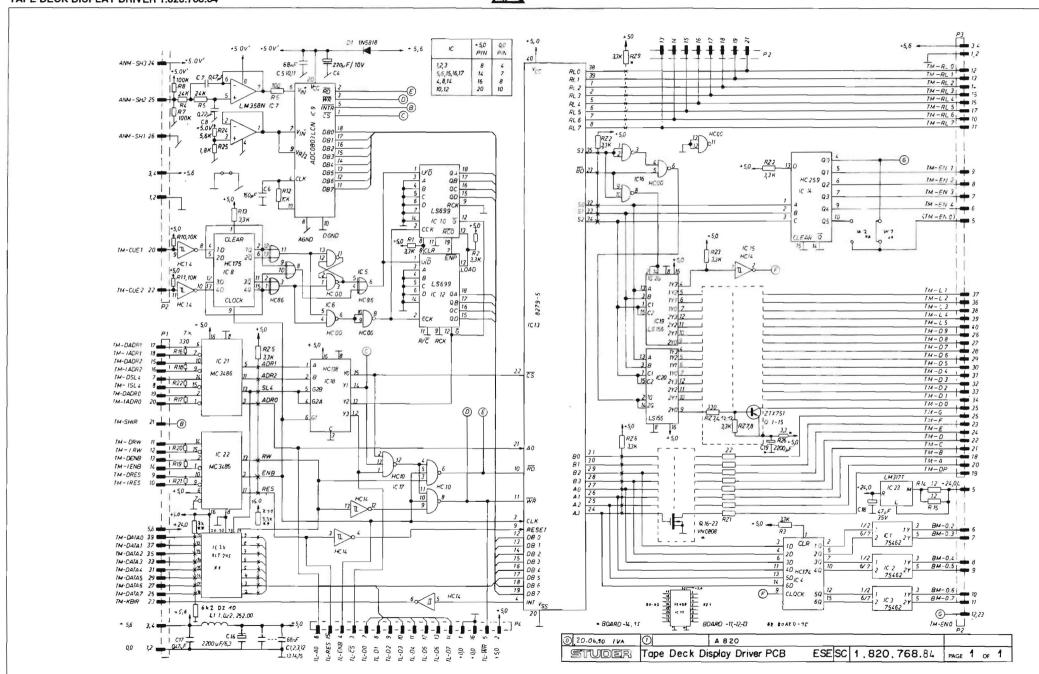


DESCRIPTION .. .MAMUFACTURER 59.26.0470 59.06.0683 59.06.0683 59.06.0683 59.06.0683 59.06.0683 59.06.0683 59.06.0683 59.06.0683 59.26.1479 59.06.0683 59.06.0683 59.26.1330 204, 6.3Y 204 204 204, 6.3Y 0....1 50.04.0512 IN 5818 1x 5819 50.15.0105 MC 3487 P DS 3487 M 50.15.0105 MC 3487 P DS 3487 M 50.17.1541 74 MC 541 50.17.1541 74 MC 541 50.16.0106 MC 66 A21P F 66 A21PC 50.16.0116 MC 66 A52 MC 66 A52 50.17.1012 74 MC 32 50.17.1148 74 MC 148 50.00.000.000 MC 66 A52 MC 66 A52 50.00.000 MC 66 A52 MC 66 A52 MC 66 A52 50.00.000 MC 66 A52 MC F 68 AZ1PC ND68 A52, S68A52 ND68 A52, S68A52 Mot.AMI.Hi Mot, Mat, To, Ph, RCA Ph, Mot, MS, RCA, To Ph, Mot, MS, RCA, To Ph, SGS, RCA, To P.....1 54.11.2004 Plug 50.03.0508 MPS 2369 57.11.4472 57.11.4103 57.11.4561 57.11.4332 57.11.4104 57.11.4332 57.11.4102 57.11.4104 57.88.4332 57.88.4332 57.88.4332 57.88.4332 3.3 kOhm 3.3 kOhm 3.3 kOhm 3.3 kOhm see note 2 see note 2 see note 2 see note 2 TP....1 TP....2 54.02.0320 54.02.0320 Testpoint Testpoint 2 \* 32 Euro board Burndy P1 64 8 20 P00 F00 20 Erai 9722.563.191 Mote 1 - Plug : Manufacturer: AMI-American Microsystem Inc., Fc-fairchild, Mi-Mitachi, Mot-Motorola, Mat-Mational (Matushita), MS-Mational Semiconductory, M-Philips (incl. Valvo), RCA-Radio Corporation of America, SGS-SGS/Ates, Sie-Siemens, To-Toshiba.

1.820.753.82 MASTER SERIAL INTERFACE

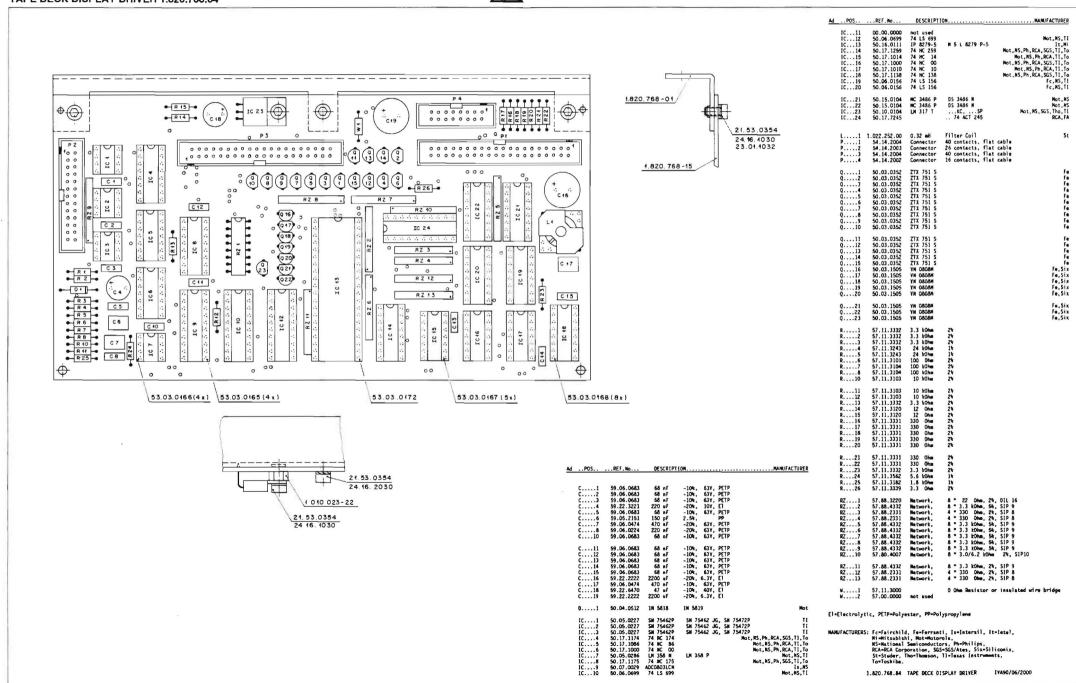


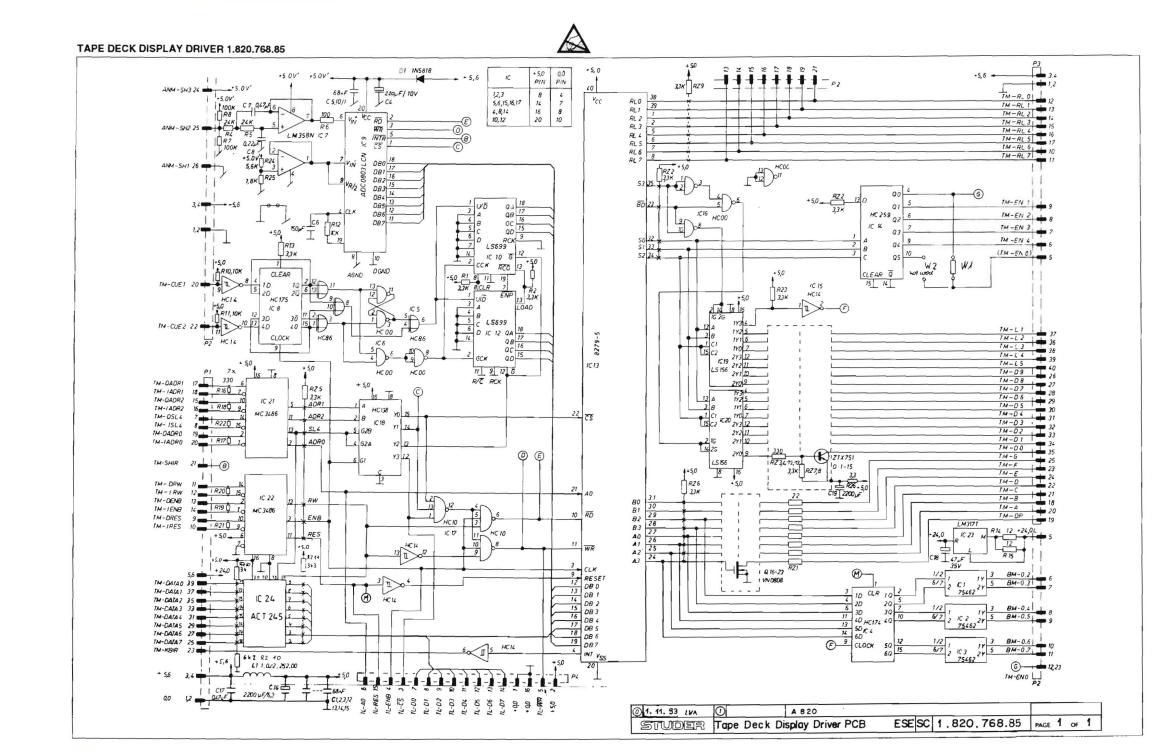
#### TAPE DECK DISPLAY DRIVER 1,820.768.84





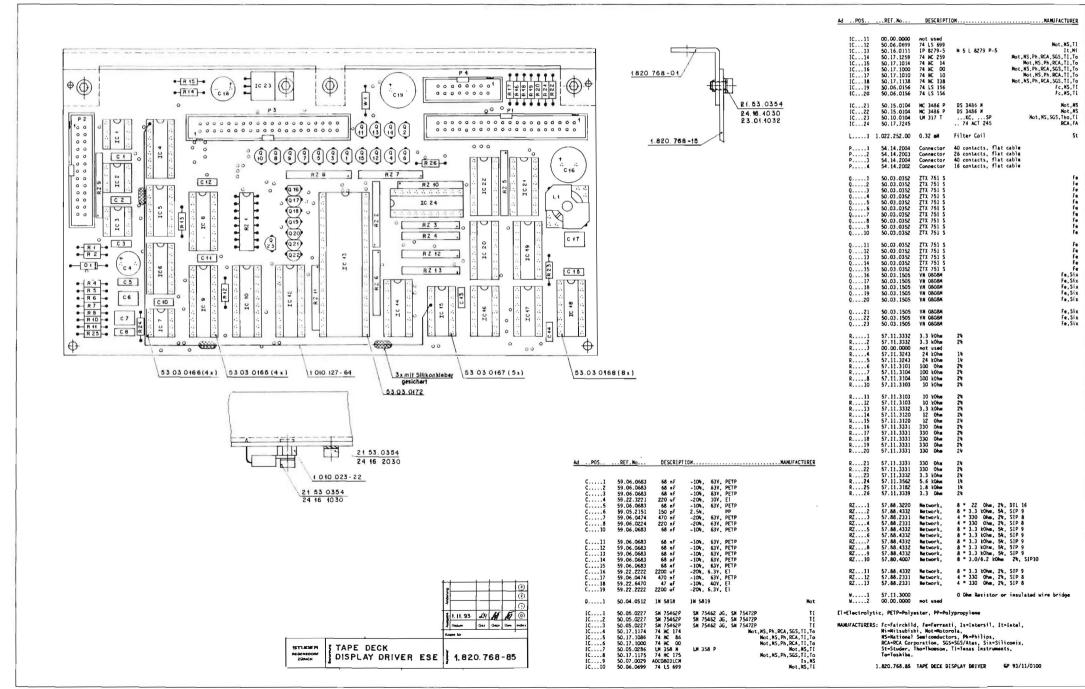
TAPE DECK DISPLAY DRIVER 1.820.768.84





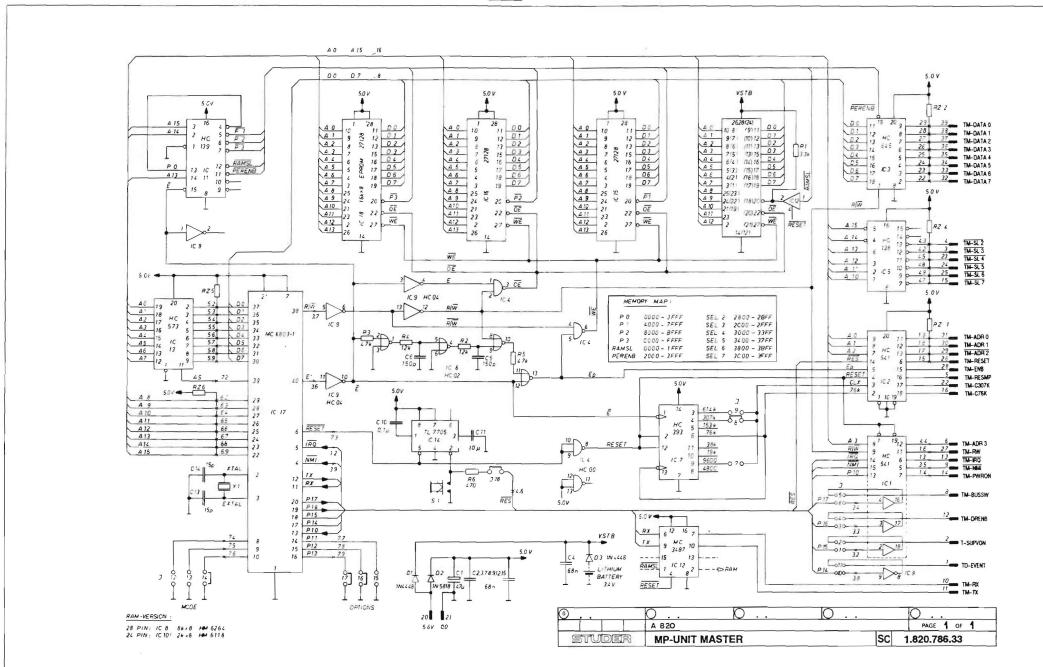


**TAPE DECK DISPLAY DRIVER 1.820,768.85** 



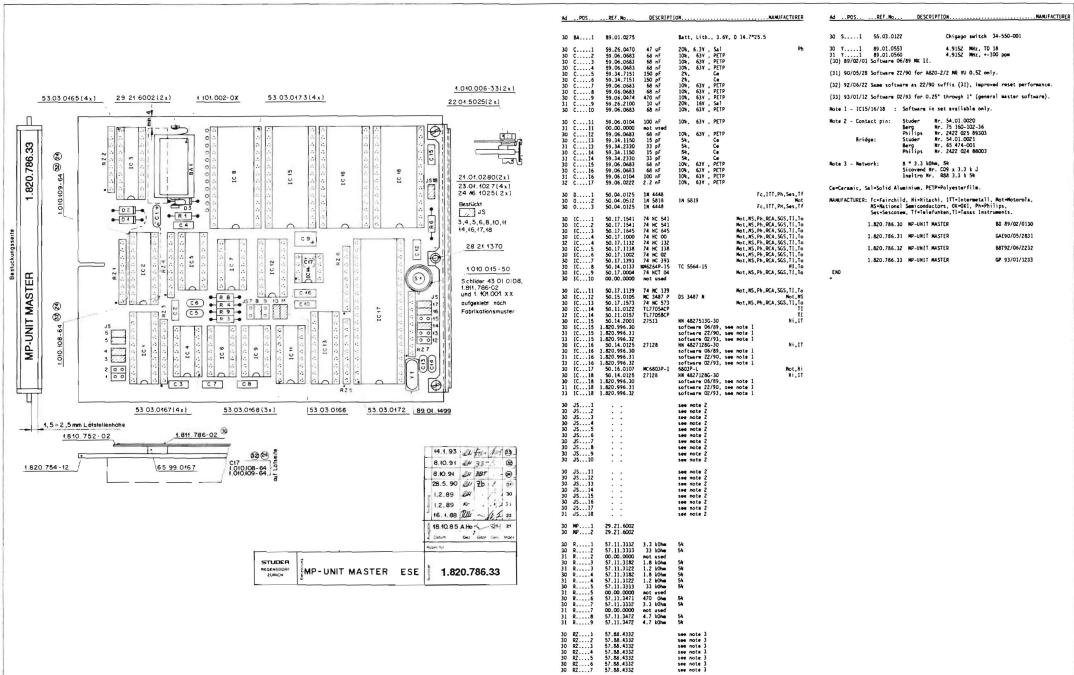


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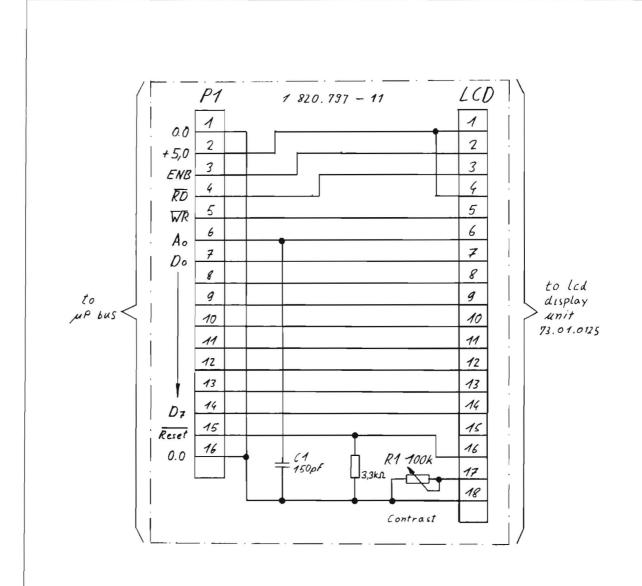




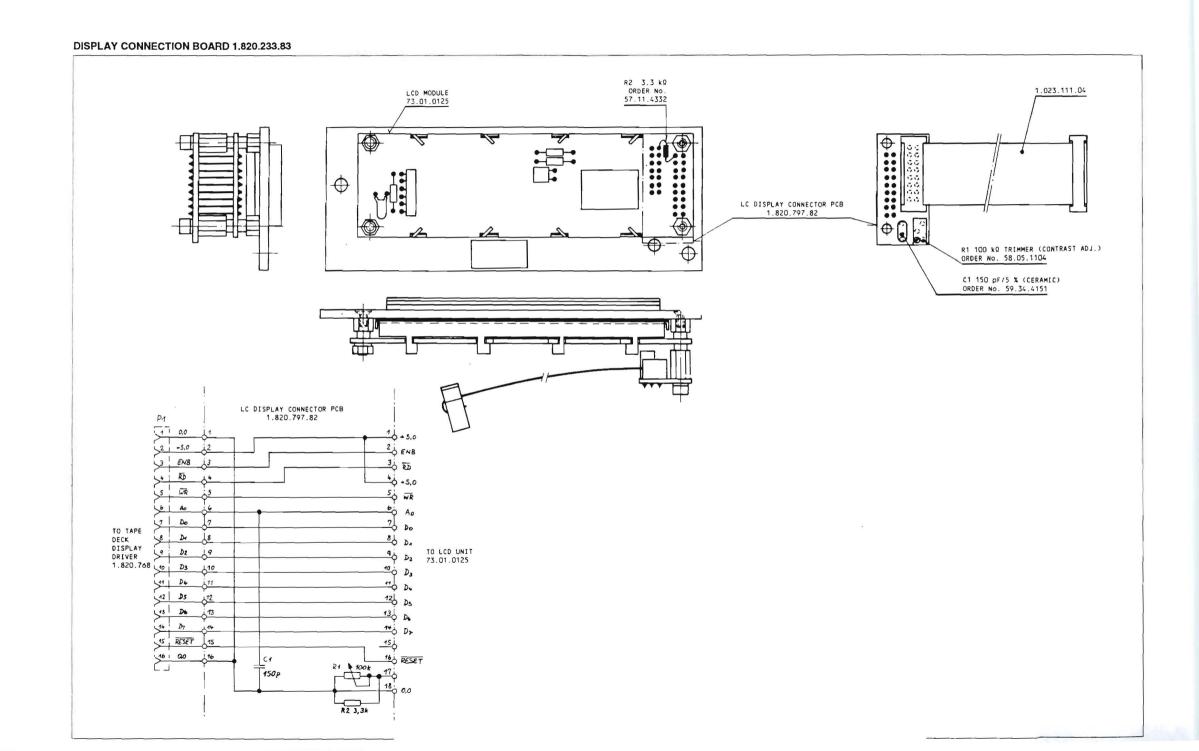
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### **DISPLAY CONNECTION BOARD 1.820.233.83**

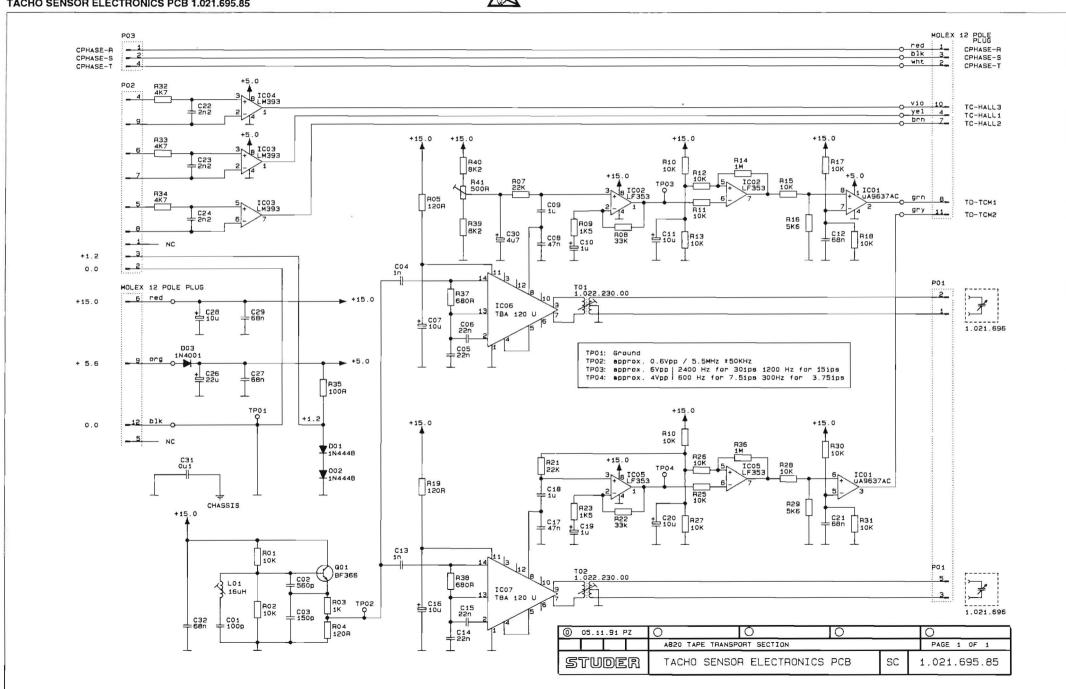


| 10.5.84 To | A820                     |              |             |
|------------|--------------------------|--------------|-------------|
| STUDER     | Display Connection Board | 1.820.233.83 | PAGE 1 OF 1 |



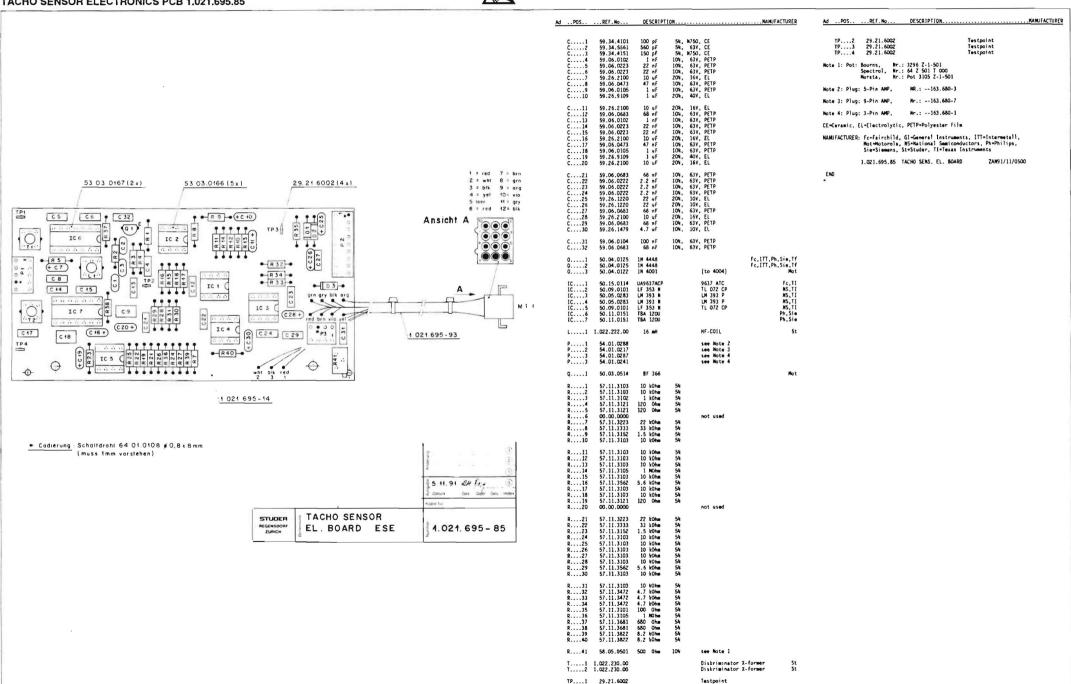


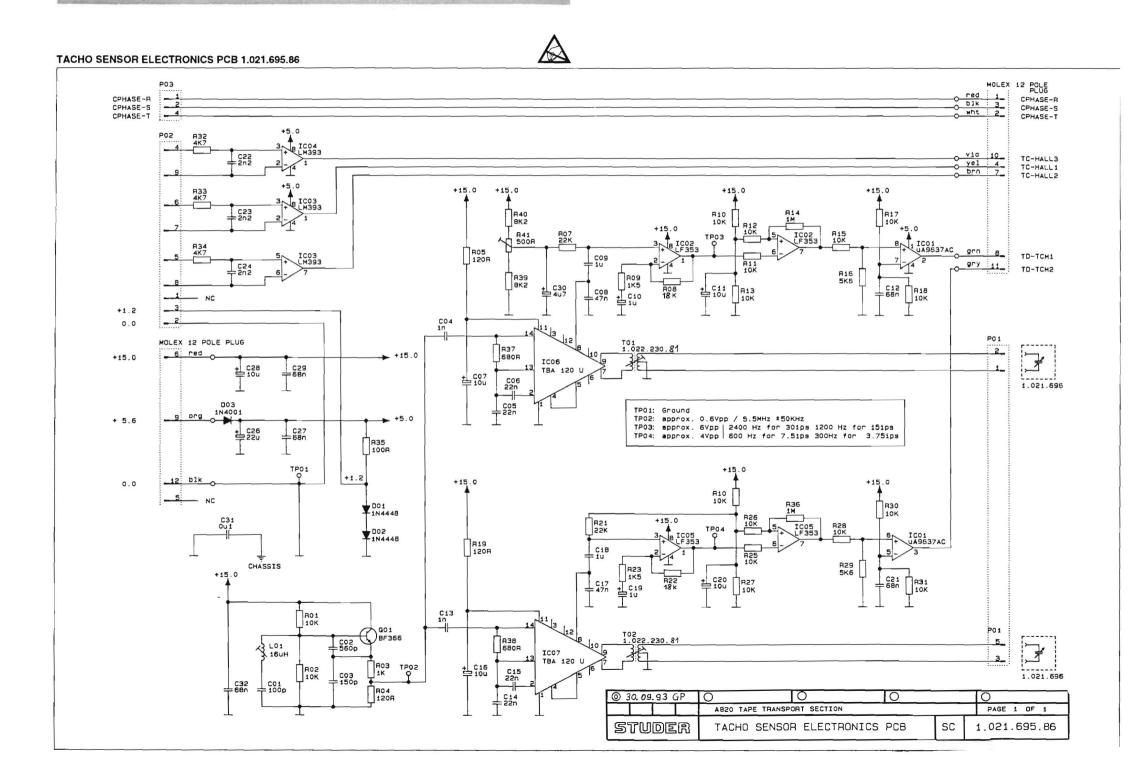
#### TACHO SENSOR ELECTRONICS PCB 1.021.695.85



#### TACHO SENSOR ELECTRONICS PCB 1.021.695.85

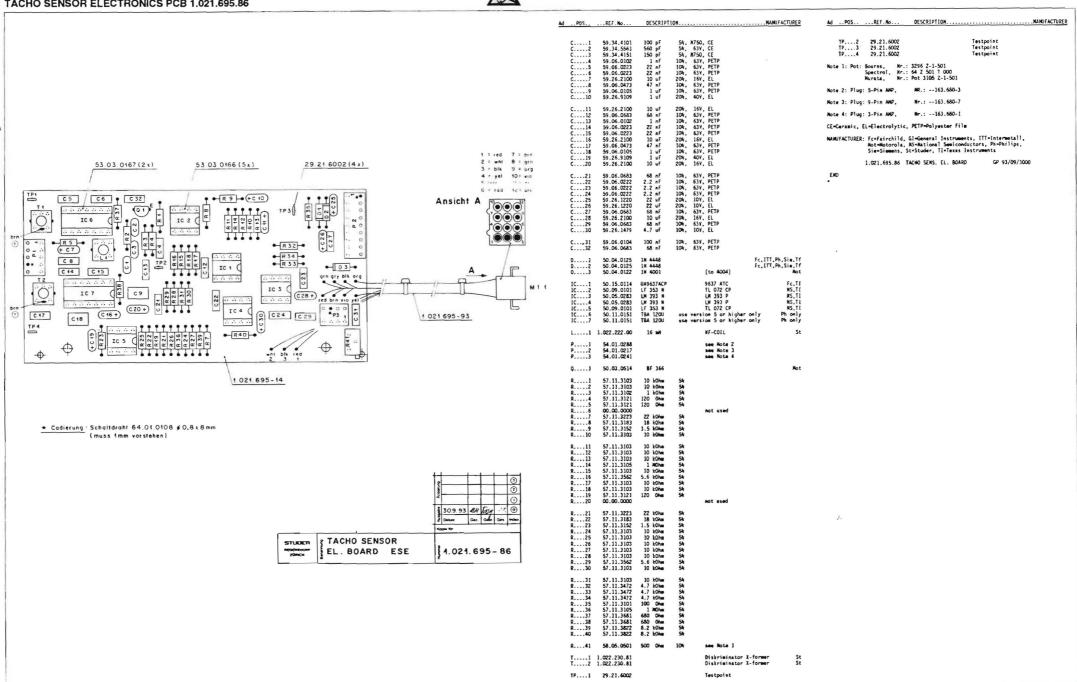






# TACHO SENSOR ELECTRONICS PCB 1.021.695.86





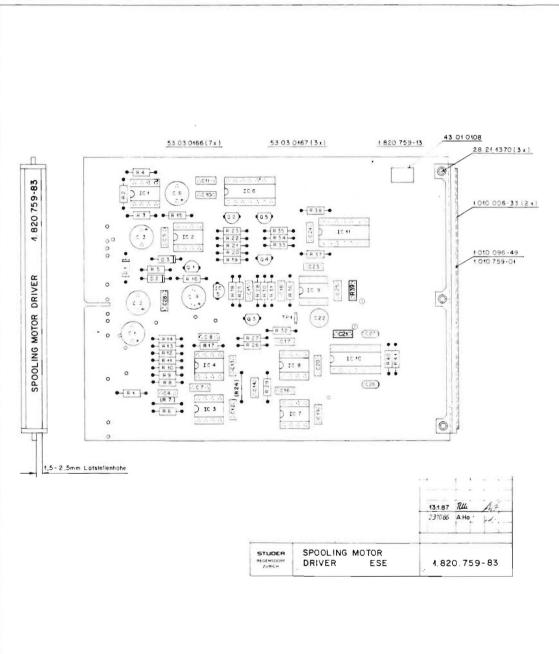
# SPOOLING MOTOR DRIVER 1.820.759.83 TO-PENSR +5,6 D2 Z DZ 1 10.0 1 -15.0 +15.0 [c9 [47]JF +0,0 220 R25 15k 150pF 2,5PP IC 10 74HC00 31 PWMPL-L6 10nF PETP PWMPL-H2 R26 47k IC 9 LF 353 N TD-C76K 1/4 10 10 TD-PENBL 23 C4 6,8nF 1+15.0 AN-IRL IC 6 40014 3 1(4 1 1/2 LF 353 1/2 LF 353 ·15.0 PWMFR-L1 LM 311 N PWMPL-L5=32 PWMPR-L3 PWMPL-L4 33 +15.01 68nF AN-IRR FWMFR-12 AN-IRP 10 PWMPR-Lb 15.0 C20 LM 311N AN-ICRD AN-ICR IC11 74 HC00 1/2 LF 353 N PWMPR-L5 36 1/2 LF 353N PWMPR-L4 37 01,02,03,04,05: MPS 2369 EBC 163, 164, 169 · L= 353 N/ TL072 : LM 317 LZ (\*\*) 3 14,10,86 A820 Tape Transport Section

STUDER

Spooling Motor Driver

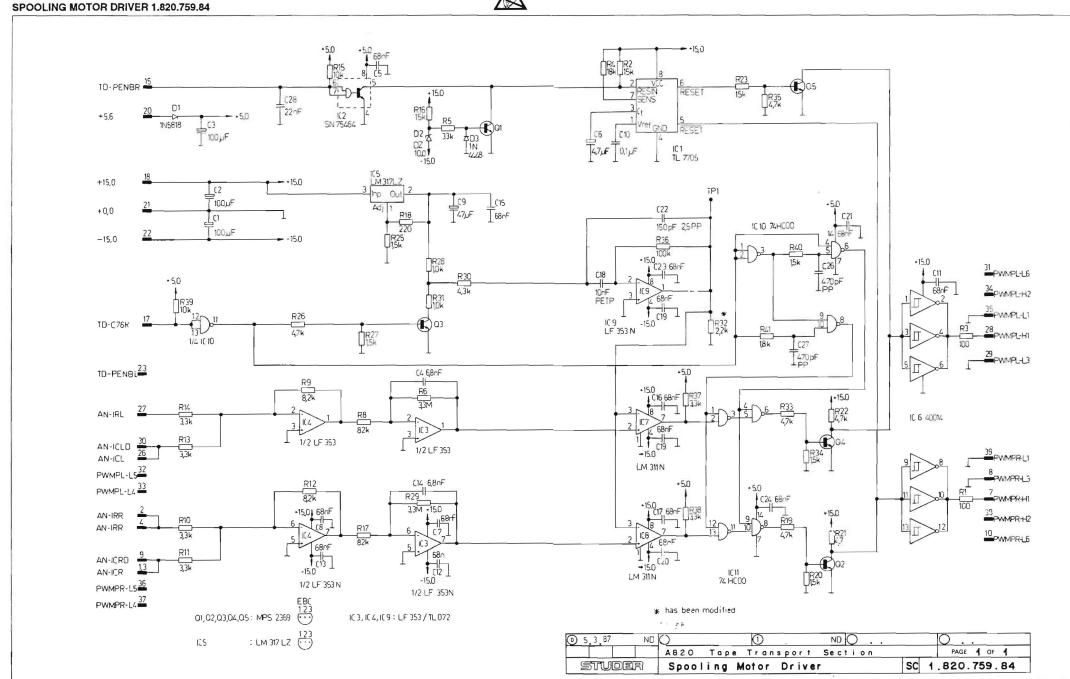
SC 1.820.759.83

#### SPOOLING MOTOR DRIVER 1.820.759.83



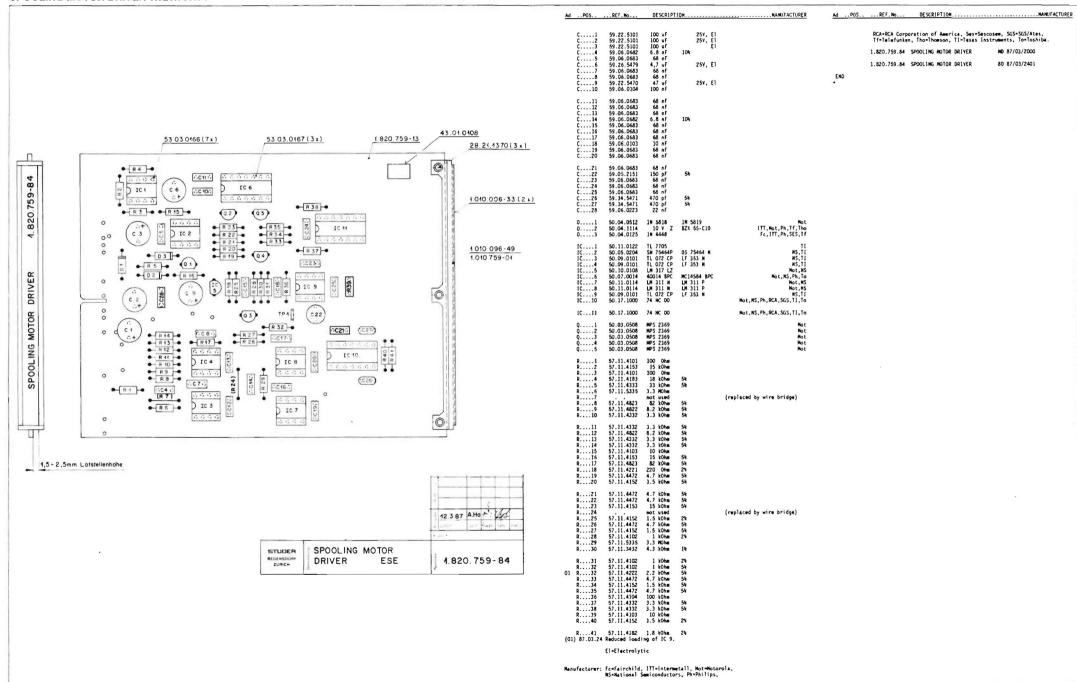
| Ad POS REF. No   | DESCRIPTION   | MAMUFACTURER  |
|--|---|---|
| C 1 59.22.5101<br>C 2 59.22.5101<br>C 3 59.22.5101<br>C 4 59.06.0682<br>C 5 59.06.0683<br>C 6 59.22.5470<br>C 7 59.06.0683<br>C 8 59.06.0683<br>C 9 59.22.5470<br>C 9 59.26.063  | 100 uf 25Y, E1<br>100 uf 25Y, E7<br>100 uf 68 nf 104<br>68 nf 47 uf 25Y, E1<br>68 nf 47 uf 25Y, E1<br>100 nf  |   |
| C  | 68 aF<br>68 aF<br>68 aF<br>68 aF<br>68 aF<br>68 aF<br>69 aF<br>10 nF<br>69 aF<br>69 aF  |   |
| C21 59.06.0683<br>C22 59.05.2151<br>C23 59.06.0683<br>C24 59.06.0683<br>C25 59.06.0683<br>C26 59.34.5471<br>C27 59.34.5471<br>C28 59.06.0223   | 68 AF 150 pF 54: 68 AF 68 AF 68 AF 470 pF 54: 470 pF 54: 22 AF  | •   |
| 01 50.04.0512<br>02 50.04.1114<br>03 50.04.0125  | IN 5818 IN 5819<br>10 Y<br>IN 4448  | Mot<br>III,Set<br>Fc,III,Ph,Ses,If  |
| IC1 50.11.0122 IC2 50.05.0204 IC3 50.09.0101 IC4 50.09.0101 IC5 50.10.0108 IC6 50.07.0014 IC7 50.11.0114 IC8 50.11.0114 IC9 50.09.0101 IC10 50.17.1000   | TL 7705 SN 75464P SN 75464P TL 072 CP LF 353 N TL 072 CP LF 353 N H317 LZ 40014 BPC LH 311 N LH 311 P TL 072 CP LF 353 N TL 770 CP LF 353 N TA NC 400 | II MS. 11 MS. 11 MS. 11 NS. 11 No. 1, MS NS. 11 No. 1, NS NS. 11 No. 1, NS NS. 11 |
| IC11 50.17.1000  | 74 MC 00  | Mot, MS, Ph, RCA, SGS, TI, To   |
| 01 50.03.0508<br>02 50.03.0508<br>03 50.03.0508<br>04 50.03.0508<br>05 50.03.0508  | MPS 2369<br>MPS 2369<br>MPS 2369<br>MPS 2369<br>MPS 2369  | Mot<br>Mot<br>Mot<br>Mot<br>Mot   |
| R  | 100 Ohu 15 IChm 100 Ohu 18 IChm 33 IChm 55; 3.3 IChm 65 IChm 55; 3.3 IChm 65 IChm 56 8.2 IChm 56 8.2 IChm 56 8.2 IChm 56 8.2 IChm 56                  | (replaced by wire bridge)   |
| R. 11 57.11.4332<br>R. 12 57.11.4522<br>R. 13 57.11.4522<br>R. 14 57.11.4332<br>R. 14 57.11.4332<br>R. 15 57.11.4103<br>R. 16 57.11.4103<br>R. 17 57.11.4823<br>R. 18 57.11.4221<br>R. 19 57.11.4221<br>R. 20 57.11.4412 | 3.3 kOhm 54 8.2 kOhm 54 3.3 kOhm 54 3.3 kOhm 54 10 kOhm 15 10 kOhm 15 82 kOhm 54 220 Ohm 54 4.7 kOhm 54 1.5 kOhm 54                                   |   |
| R. 21 57.11.4472 R. 22 57.11.4472 R. 23 57.11.4452 R. 24 57.11.4152 R. 26 57.11.4152 R. 26 57.11.4152 R. 28 37.11.4152 R. 28 57.11.4152 R. 29 57.11.4152 R. 29 57.11.4152  | 4.7 kOhm 54 4.7 kOhm 54 15 kOhm 54 not used 1.5 kOhm 24 4.7 kOhm 55 1.5 kOhm 55 1 kOhm 55 1 kOhm 24 3.3 kOhm 4.3 kOhm 14                              | (replaced by wire bridge)   |
| R. 31 57.11.4102<br>R. 32 57.11.4102<br>R. 33 57.11.4102<br>R. 34 57.11.4172<br>R. 34 57.11.4152<br>R. 35 57.11.4152<br>R. 37 57.11.4332<br>R. 38 57.11.4332<br>R. 39 57.11.4332<br>R. 39 57.11.4103                     | 1 KOhm 2%<br>1 KOhm 5%<br>1.7 KOhm 5%<br>1.5 KOhm 5%<br>1.00 KOhm 5%<br>100 KOhm 5%<br>3.3 KOhm 5%<br>10 KOhm 5%<br>10 KOhm 5%                        |   |
| R41 57.11.4182<br>E1=E1ectrolyt<br>Manufacturer: Fc=Fairchild,<br>Sea-RCA Corpo<br>Tf=Talafunken   | 1.8 kOhm 2%<br>iic<br>ITT=Intermetall, Mot=Mots<br>iemicanductors, Ph=Philips,<br>oration of America, Sex=Sex<br>ITT=Texas Instruments, To            | orole,<br>scosms, SGS-SGS/Ates,<br>   |
| 1.820.759.83   | SPOOLING MOTOR DRIVER   | PS 86/08/2700   |







**SPOOLING MOTOR DRIVER 1.820.759.84** 

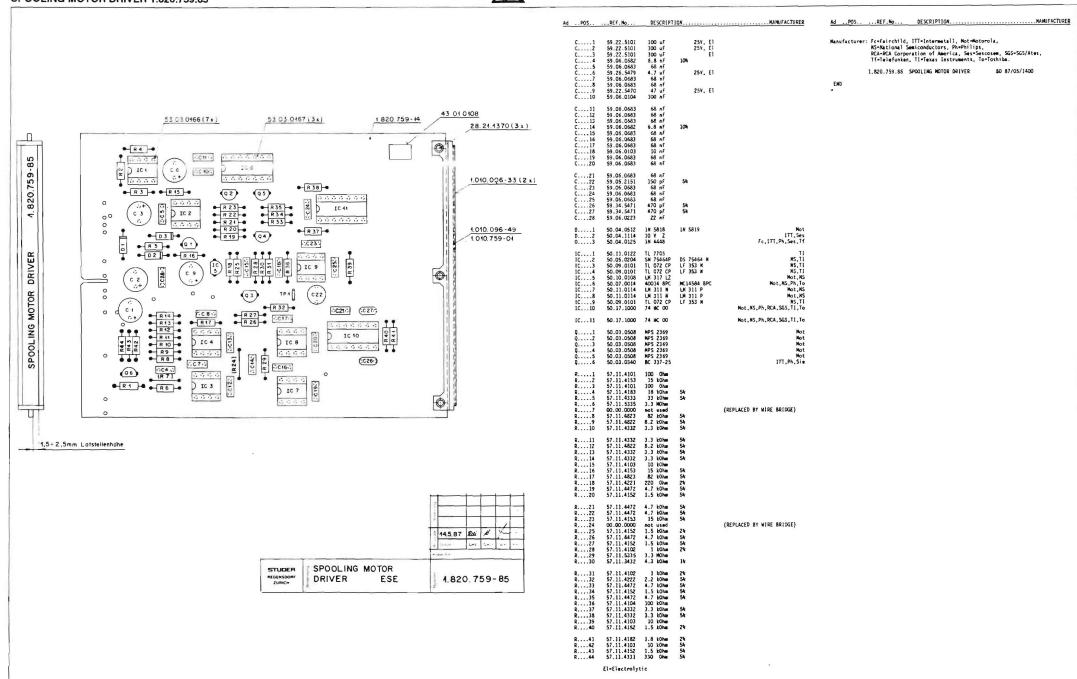




# SPOOLING MOTOR DRIVER 1.820.759.85 TD-PENBR = 15 \_C28 22nF D1 IN5818 +5.6 R42 R43 +15.0 [69] [47] 100µF +0,0 IC 10 74HC00 150pF 2,5PP -15,0 PWMPL-L6 10nF PETP PWMPL-H2 PWMPL-L1 IC 9 LF 353 N TD-C76K C27 T470pF PP 29 PWMPL-L3 TD-PENBL 23 C4 6,8nF IC 6 40014 1/2 LF 353 1/2 LF 353 AN-ICL LM 311N PWMPL-L532 (14, 6,8nF PWMPL-L4 33 R29 3,3M -15.0 AN-IRR PWMPR+12 AN-IRR AN-ICRD AN-ICR 1011 74 HC00 1/2 LF 353 N PWMPR-L5 1/2 LF 353N PWMPR-L4 37 01,02,03,04,05: MPS 2369 IC 3, IC 4, IC 9: LF 353 / TL 072 06 : BC 337-25 CBE : LM 317 LZ ... PAGE 4 OF 4 A820 Tape Transport Section SC 1.820.759.85 Spooling Motor Driver

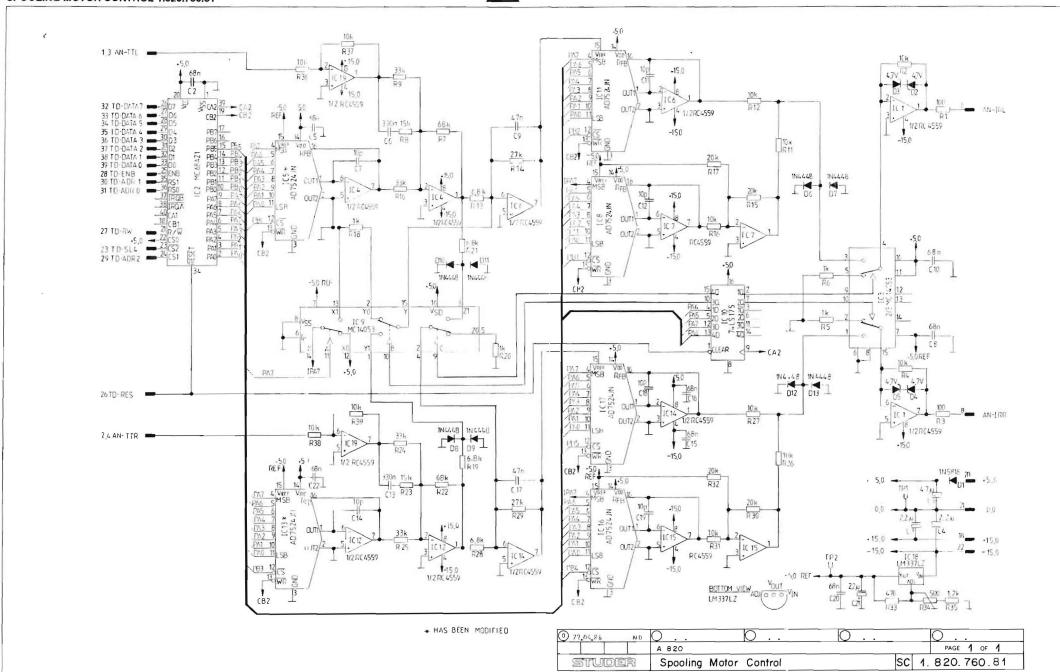
#### SPOOLING MOTOR DRIVER 1.820.759.85





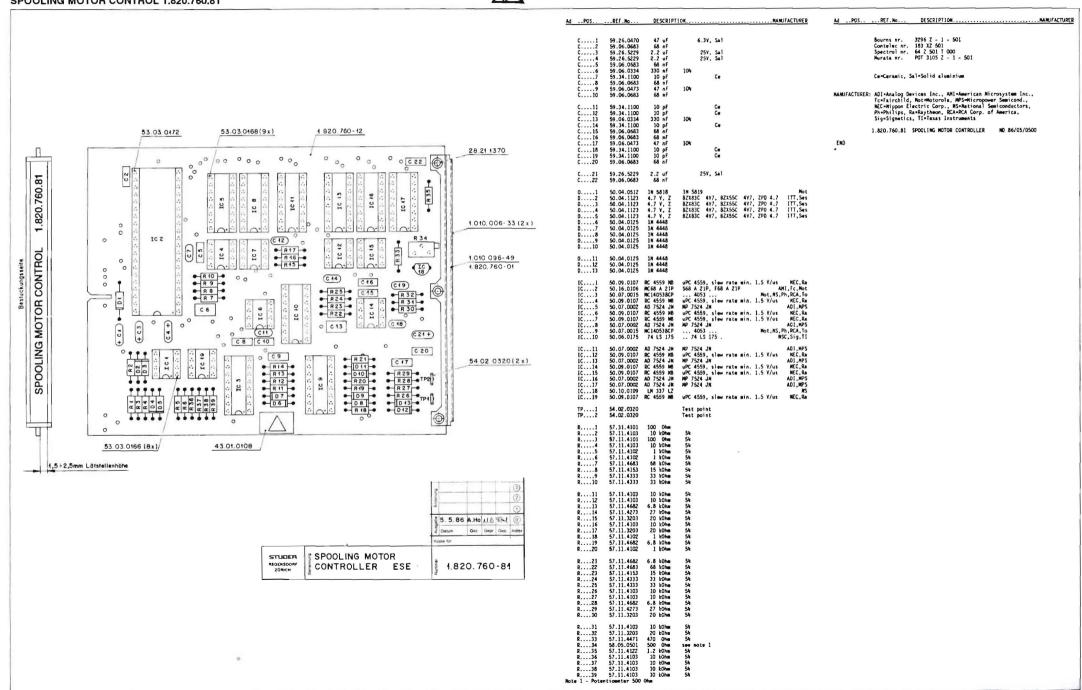


# SPOOLING MOTOR CONTROL 1.820.760.81



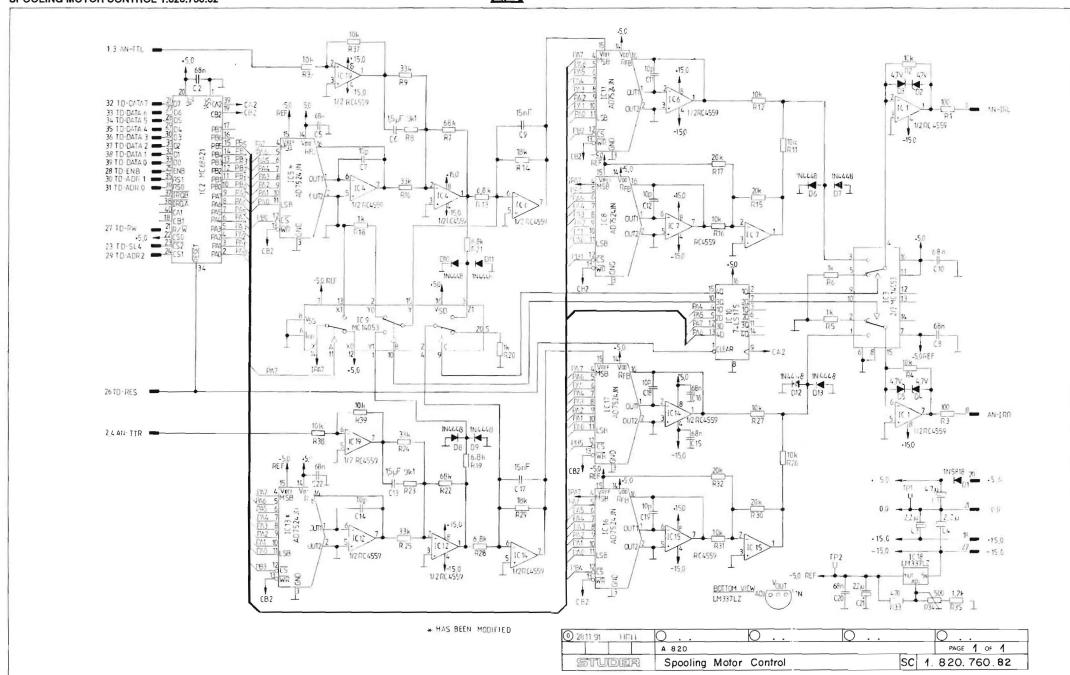


## SPOOLING MOTOR CONTROL 1,820,760,81

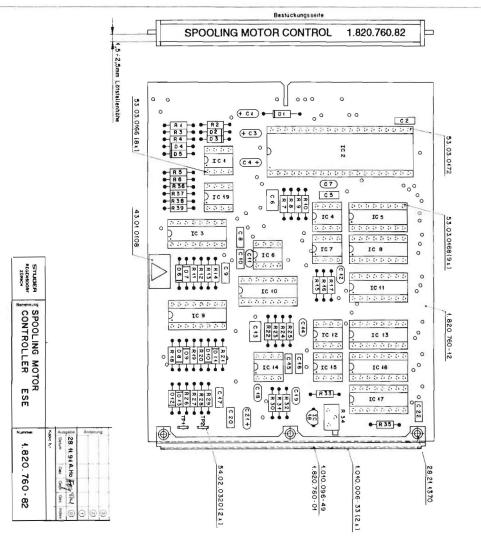




# SPOOLING MOTOR CONTROL 1.820.760.82



SPOOLING MOTOR CONTROL 1.820.760.82



99.34.1100 99.34.1100 99.06.5155 99.34.1100 99.06.0683 99.06.5153 99.34.1100 99.06.0683 99.06.0683 99.26.5229 \$0.07.0000 \$0.90.0107 \$0.07.0000 \$0.90.0107 \$0.90.0107 \$0.07.0000 \$0.10.0109 \$0.09.0107 \$6.09.0107 \$6.16.0106 \$6.07.0015 \$6.09.0017 \$6.07.0002 \$6.07.0002 \$6.07.0015 \$6.07.0015 50.04.0125 50.04.0125 50.04.0125 \$6.04.0512 \$6.04.1123 \$6.04.1123 \$6.04.1123 \$6.04.0125 \$6.04.0125 \$6.04.0125 \$6.04.0125 59.06.0683 AC 4559 MB RC 4559 M8
MC68 A 21P
MC14053BCP
RC 4559 M8
A0 7524 JM
AC 4559 M8
RC 4559 M8 8 af ## JPC 659, 11er rete in 1.5 V/s MC, Eu

## SE A 219, 16e 219

## JPC 580, 1.5 M 2 219

## JPC 580, 1.5 M 2 219

## JPC 580, 1.5 M 2 219

## JPC 580, 1.6 M 2 219

## JPC 580, 1.6 M 2 219

## JPC 580, 1.6 M 2 219

## JPC 659, 1.6 M 2 219

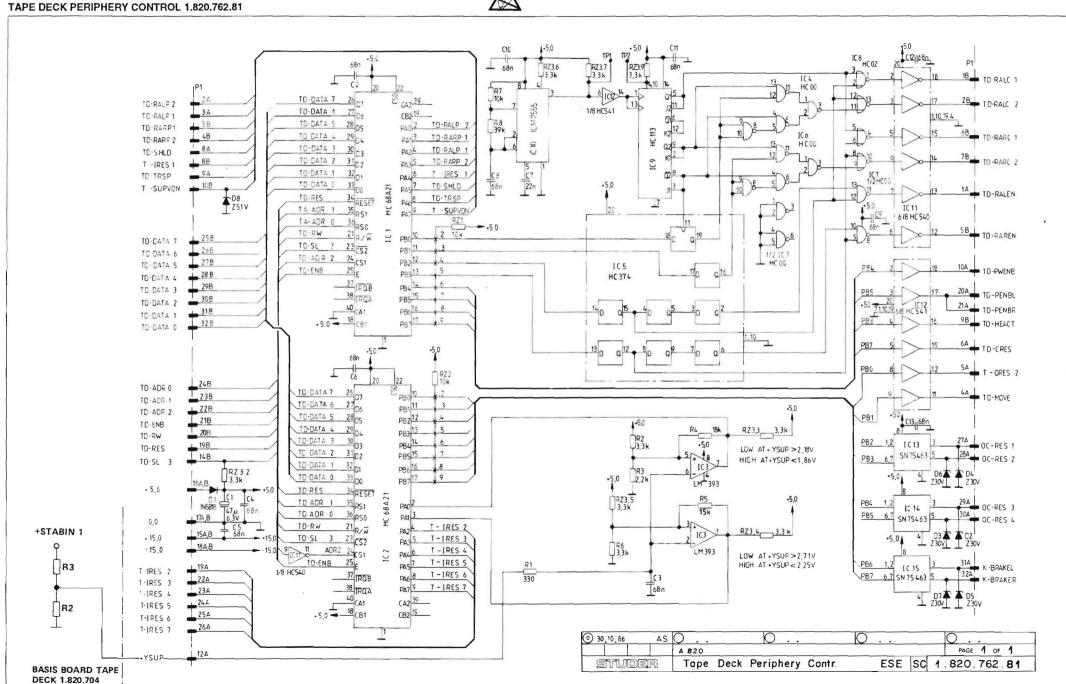
## JPC 6 Lie W. 1254 JH

Lie W. 1254 JH

Lie W. 1355 JH 17 5819 BZX83C BZX83C BZX83C uPC 4559, slew rate min. 1.5 Y/us 800 1014 25v, s.i 6.3Y, 25Y, 25Y, 3333 rr r 3333 7, ZPD 4.7 7, ZPD 4.7 7, ZPD 4.7 7, ZPD 4.7 EEEE EEEE ADI, MPS ADI, MPS ADI, MPS ADI, MPS ADI, MPS **'**§

: P0S.



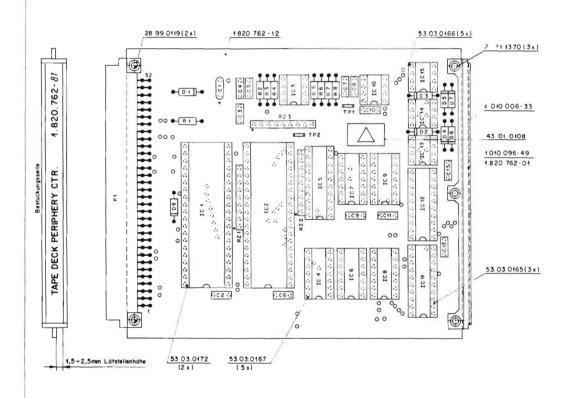


**UP-DATE** Tape Deck Section

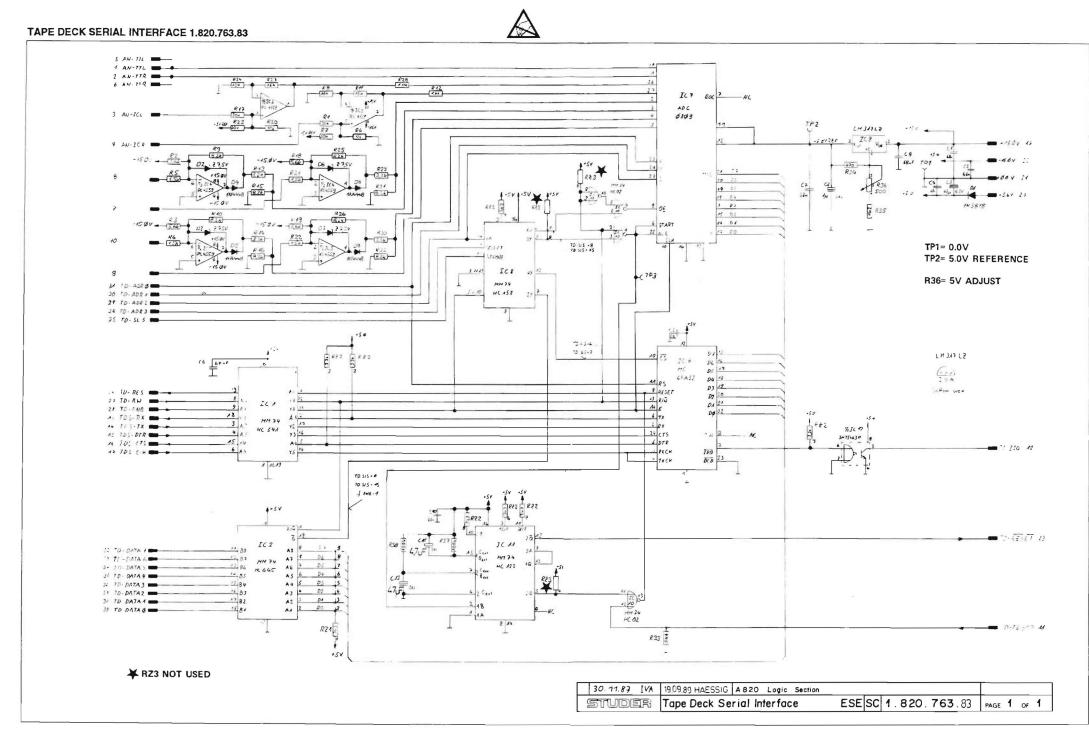
#### STUDER A820



#### TAPE DECK PERIPHERY CONTROL 1.820.762.81

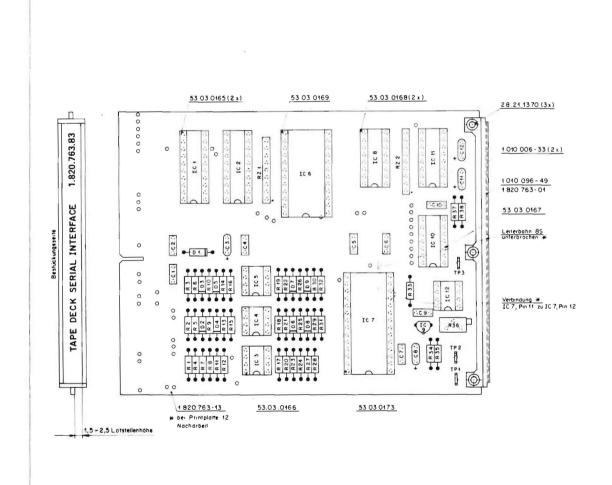


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Ad ..POS.....REF.No... DESCRIPTION......
                                                                                                                                                                                                                                                                                                                                                                                                                              . MANUFACTURER
                                                                                     59.26.0470
59.06.0683
59.06.0683
59.06.0683
59.06.0683
59.06.0683
59.06.0223
59.06.5683
59.06.0683
59.06.0683
                                                                                                                                                                       47 uf
68 nf
                                                                                     59.06.0683
59.06.0683
59.06.0683
                                                                                                                                                                                                                                 IN 5819 Not 270 30 1117 270 30 1117 270 30 117 270 30 117 270 30 117 270 30 117 270 30 117 270 30 117 270 30 117 270 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 170 30 1
                                                                                       50.04.0512
50.04.1125
50.04.1125
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50.04.1125
50.04.1125
50.04.1125
50.04.1125
                                                                                 $0.16.0106 MC58 A 21P $568 A 21P $0.16.0106 MC58 A 21P $568 A 21P $0.05.023 LN 393 N LN 393 P $668 A 21P $0.05.023 LN 393 N LN 393 P $0.17.1000 74 MC 00 .174 MC 00 .517.1107 74 MC 374 .00 .174 MC 00 .517.1107 74 MC 374 .00 .174 MC 00 .517.1000 74 MC 00 .174 MC 00 .50.17.1000 74 MC 00 .174 MC 00 .50.17.1000 74 MC 00 .174 MC 00 .50.17.1002 74 MC 02 .74 MC 02 .50.17.1103 74 MC 113 .50.07.0036 ICN75551PA
                                                                                                                                                                                                                                                                                                                                                                                                                                          AMI,Fc,Mot
AMI,Fc,Mot
MS,TI
Mot,MS,TI
Mot,MS,TI
Mot,MS,TI
Mot,MS,TI
Mot,MS,TI
Mot,MS,TI
Is,Ma
                                                                               50.17.1540 74 KC 540 ... 74 KC 540
50.17.1541 74 KC 541 ... 74 KC 541
50.05.0203 SN 75463 P DS 3613 N
50.05.0203 SN 75463 P DS 3613 N
50.05.0203 SN 75463 P DS 3613 N
                                                                                 54.11.2004
                                                                                                                                                                                                                                             2 " 32 contacts, see note 1
                                                                                 57.11.4331 330 Ohm
57.11.4332 3.3 kOhm
57.11.4222 2.2 kOhm
57.11.4163 18 kOhm
57.11.4153 15 kOhm
57.11.4332 3.3 kOhm
57.11.4333 39 kOhm
                                                                                 57.88.4103 10 k0hm
57.88.4103 10 k0hm
57.88.4332 3.3 k0hm
                                                                                                                                                                                                                                                                                                                                See note 2
See note 2
See note 3
                     TP....2 54.02.0320 test pin
TP....2 54.02.0320 test pin
                                                                                                                                                       2 * 32 Euro Print
Burndy PT 64 B 20 P00 F00 Z0
Erni 9722.563.191
   Note 1 - Connector:
                                                                                                                                                         8 * 10 tOhm, 5k, single line
Bourns 4609 X - 101 - 103
Sprague 256 C 103 X 2 P0
Beckmann L - 09 - 1 - R 10 kJ
Matushita F 9 E 10 k 5k
Tamb MRG C 09 X 10 k J
   Note 2 - Metwork:
                                                                                                                                                         8 * 3.3 kOhm, Sk, single line
Bourns 4609 X - 101 - 332
Sprague 256 C 1392 X 2 PO
Becksann L - 09 - 1 - R 3.3 k J
Hatsushita F 9 E 3.3 k 5k
Tama MRGC CO9 X 3.3 k J
 Note 3 - Network:
Manufacturer: AMI-American Microsystem Inc., Fc=Fairchild,
Mi-Mitachi, ITT-Intermetall, Is-Intervil, Na-Maxim,
Mor-Motorola, MS-Mational Semiconductors,
Ph-Philips, Ra-Raythoon, RCA-MCA Corporation of America,
Sig=Signetics, IT-leasa Instruments, Io-Ioshiba.
                                                                           1.820.762.81 TAPE DECK PERIPHERY CONTR. 80 86/10/3000
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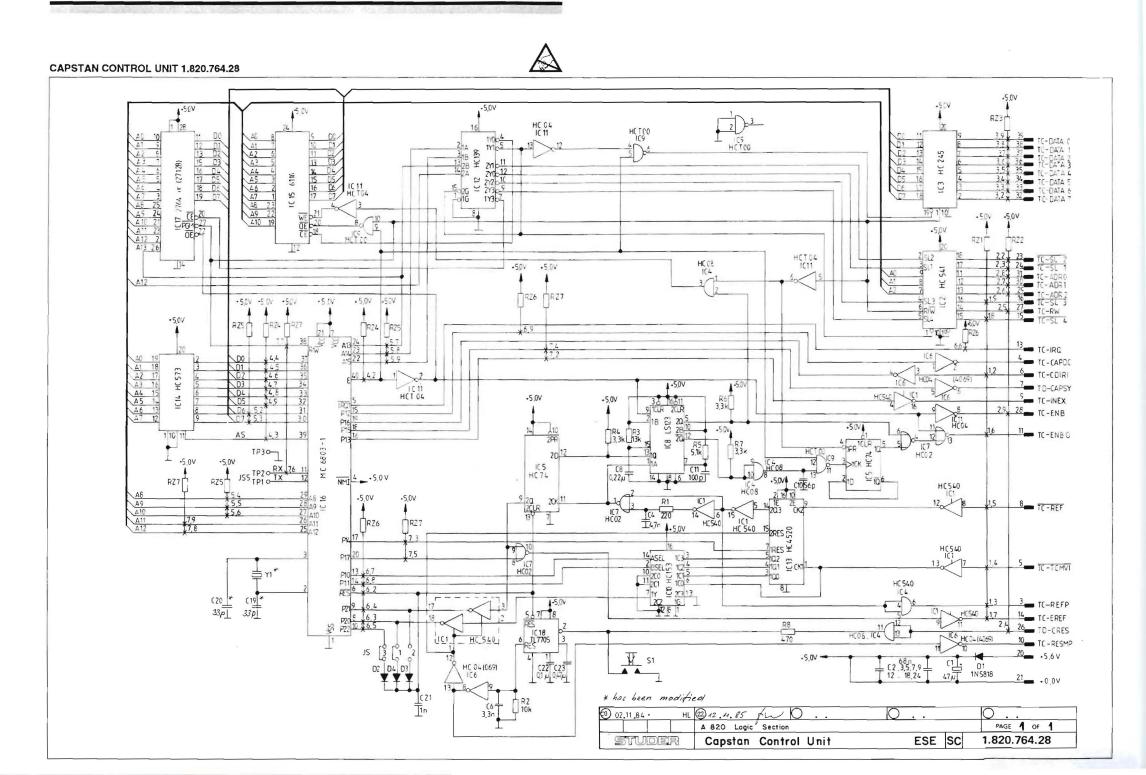




#### TAPE DECK SERIAL INTERFACE 1.820,763.83

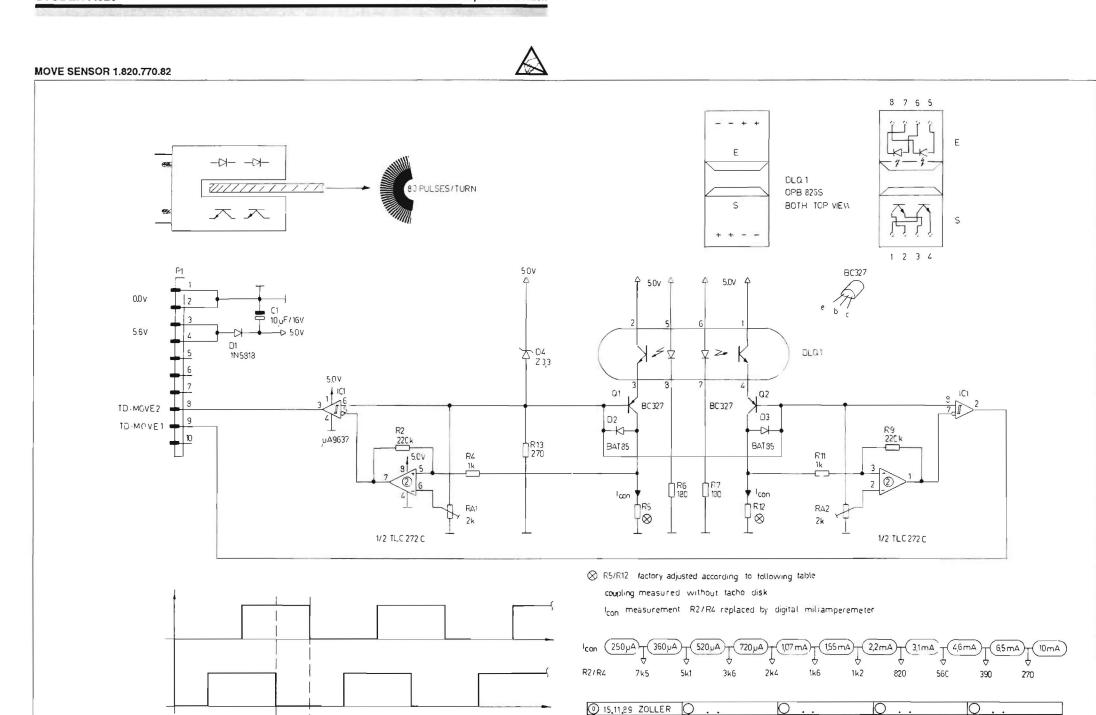


| AdPOS REF.   | Mo DESCRIPT   | кот   |  |
|--|---|---|--|
| C1 59.06<br>C2 59.06<br>C3 59.42<br>C4 59.06<br>C5 59.06<br>C6 59.06<br>C7 59.06<br>C8 59.26<br>C9 59.06   | .0470 47 uf<br>.0683 68 nf<br>.0683 68 nf<br>.0683 68 nf<br>.9683 68 nf<br>.9109 1.0 uf<br>.0683 68 nf  | 20%<br>20%<br>20%<br>20%<br>20%<br>20%<br>20%<br>20%<br>20%<br>20%  | NS, Mot<br>NS, Mot<br>Ph<br>NS, Mot<br>NS, Mot<br>NS, Mot<br>NS, Mot<br>NS, Mot<br>NS, Mot<br>NS, Mot  |
| C11 59.26<br>C12 59.26   | .1479 4.7 uF<br>.1479 4.7 uF  | 204<br>204  | Ph<br>Ph   |
| 01 50.04<br>02 50.04<br>03 50.04<br>04 50.04<br>05 50.04<br>07 50.04<br>07 50.04<br>08 50.04<br>09 50.04   | .1103 7.5 Y<br>.1103 7.5 Y<br>.0125 1N 4448<br>.0125 1N 4448<br>.1103 7.5 Y<br>.0125 1N 4448  | 1N 5819<br>54, .40M,Z,planar<br>54, .40M,Z,planar<br>51<br>55, .40M,Z,planar<br>54, .40M,Z,planar<br>51                                 | Mot<br>III, Ses<br>III, Ses<br>Fc, III, Ph, Ses, IF<br>Fc, ITI, Ph, Ses, IF<br>ITI, Ses<br>Fc, III, Ph, Ses, IF<br>Fc, III, Ph, Ses, IF  |
| IC1 50.17<br>IC2 50.17<br>IC3 50.09<br>IC4 50.09<br>IC5 50.09<br>IC5 50.09<br>IC7 50.19<br>IC7 50.19<br>IC8 50.17<br>IC9 50.10<br>IC10 50.17                 | .0107 RC4559 NB<br>.0107 RC4559 NB<br>.0114 NC68A52P<br>.0101 ADC 0809<br>.1158 74HC 158<br>.0108 LH317 LZ<br>.1002 74HC 02   | V-Reg.  | Mot, NS, Ph, RCA, SGS, TI, To<br>Mot, NS, Ph, RCA, SGS, TI, To<br>NEC, Ra<br>NEC, Ra<br>AMI, Ni, Not<br>AMI, Ni, Not<br>Not, Nat, Ph, RCA, SGS, TI, To<br>Mot, Nat, Ph, RCA, SGS, TI, To |
|  | .1123 74HC 123<br>.0203 SM75463P  | DS 3613 K   | Ph.RCA,SGS.To<br>MS.TI   |
| R1 57.11<br>R2 57.11<br>R3 57.11<br>R4 57.11<br>R6 57.11<br>R6 57.11<br>R6 57.11<br>R8 57.11<br>R9 57.11<br>R9 57.11   | .3303 30 k0hs<br>.3562 5.6 k0hs<br>.3562 5.6 k0hs<br>.3103 10 k0hs<br>.3152 1.5 k0hs<br>.3303 30 k0hs<br>.3303 30 k0hs<br>.3303 30 k0hs<br>.3303 8.2 k0hs<br>.3822 8.2 k0hs   | 24<br>54<br>24<br>54<br>54<br>74<br>75<br>54<br>55  |  |
| R11 57.11<br>R12 57.11<br>R13 57.11<br>R14 57.11<br>R15 57.11<br>R16 57.11<br>R17 57.11<br>R18 57.11<br>R19 57.11<br>R20 57.11                               | .3303 30 k0hm<br>.3562 5.6 k0hm<br>.3562 5.6 k0hm   | 21<br>54<br>54<br>54<br>54<br>54<br>54<br>54<br>54<br>54  |  |
| R 21 57 . 11<br>R 22 57 . 11<br>R 23 57 . 11<br>R 24 57 . 13<br>R 24 57 . 13<br>R 25 57 . 11<br>R 26 57 . 11<br>R 28 57 . 11<br>R 28 57 . 11<br>R 29 57 . 11 | .3152 1.5 kOhe<br>.3152 1.5 kOhe<br>.3153 30 kOhe<br>.3303 30 kOhe<br>.33103 10 kOhe<br>.3822 8.2 kOhe<br>.3822 8.2 kOhe<br>.3153 15 kOhe<br>.3102 1.0 kOhe<br>.3332 3.3 kOhe | 54<br>54<br>24<br>25<br>54<br>54<br>54<br>54<br>55<br>54  |  |
| R31 57.11<br>R32 57.11<br>R33 57.11<br>R34 57.11<br>R35 57.11<br>R36 58.05<br>R37 57.11<br>R38 57.11   | .3822 8.2 kOhm<br>.3562 5.6 kOhm<br>.3471 470 Ohm<br>.3122 1.2 kOhm<br>.0501 500 Ohm<br>.3104 100 kOhm  | 5%<br>5%<br>5%<br>2%<br>2%<br>Potentiometer<br>5%<br>5%   | see note 1   |
| RZ2 57.88<br>RZ3 00.00   | .4332 8°3.3k0hm<br>.0000 not used   |   |  |
| TP1 54.02<br>TP2 54.02<br>TP3 54.02  | .0320 2.8° 0.8<br>.0320 2.8° 0.8<br>.0320 2.8° 0.8  | soldering test pin<br>soldering test pin<br>soldering test pin  |  |
| Note 1 - Patentiamete  |   | 9k, .5M, PMG  |  |
|  | Bourns<br>Spectrol<br>Murata<br>Contelec  | 3296 Z - 1 - 501<br>64 Z 501 T 000<br>POT 3105 Z - 1 -<br>183 XZ 501  | 501  |
| Manufacturer: AMI-Am<br>Hi-Hit.<br>HEC-Ni<br>Ph-Phi<br>RCA-Rac<br>SGS-SG:  | erican Microsystem<br>achi, Mot-Motorola<br>ppon Electric Corp<br>pips (incl. Yalvo)<br>dio Corporation of<br>S/Ates, TI-Taxas I  | Inc., Fc=Fairchild,<br>, Mat=Mational (Matsu<br>, MS=Mational Semico<br>, Ra=Raytheon,<br>America, Ses=Sescose<br>nstrument, To=Toshibe | shita),<br>nductors,   |
|  | 63.83 TAPE DECK S   |   | H89/09/1900  |



# CAPSTAN CONTROL UNIT 1.820.764.28

| APSTAN CONTROL UNIT 1.820.764.28                                  | W  |                          |  |
|---|--|--------------------------|--|
|   |  | AdPOSREF.No. DESCRIPTION | AdPOSREF.No DESCRIPTION                          |
| 53.03.0165 53.03.0167 93.03.0168 53.03.0169 53.03.0169 53.03.0173 | 28. 24.1370 1010.015-50 1010.006-33 53.03.0166 1.010.096-49 1.820.764-01 54.02.0320 Drahtbrücke ouf Lötseite  Beshickt JS 1, 3 | 20 C                     | For Software 35/85 and feture versions:   Studer |



→ 90° ± 30° max

A 320

MCVE SENSCR

STUDER

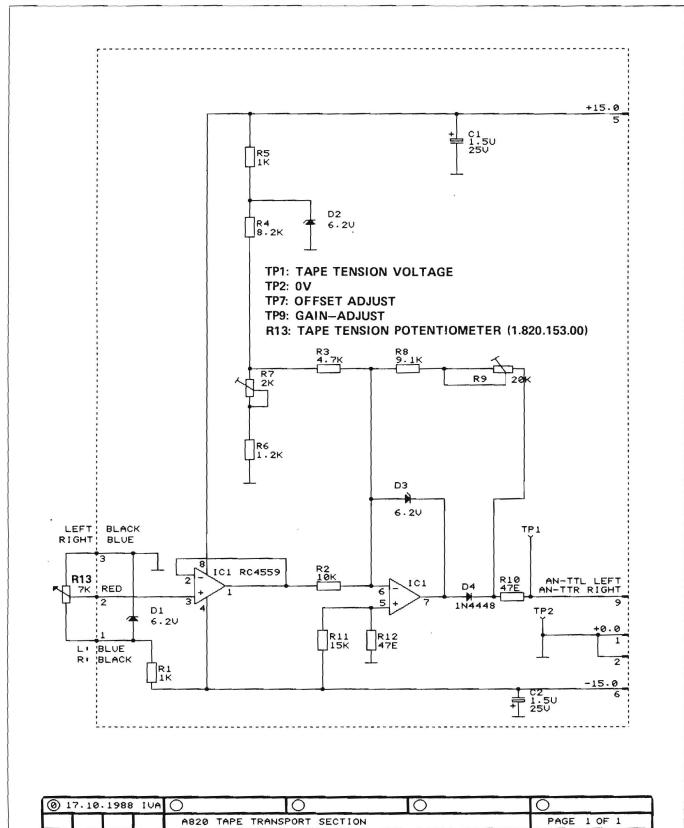
PAGE 1 OF 1

1.320.770.32

SC

# **TAPE TENSION SENSOR PCB 1.820.772.81**

STUDER

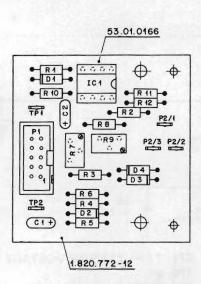


TAPE TENSION SENSOR PCB

1.820.772.81

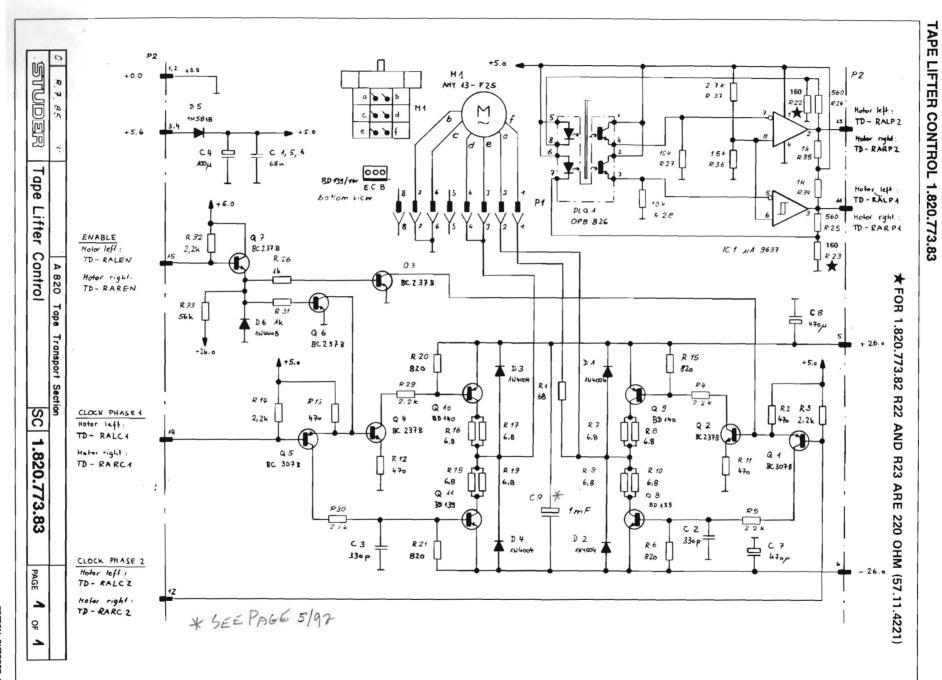
SC

# **TAPE TENSION SENSOR PCB 1.820.772.81**



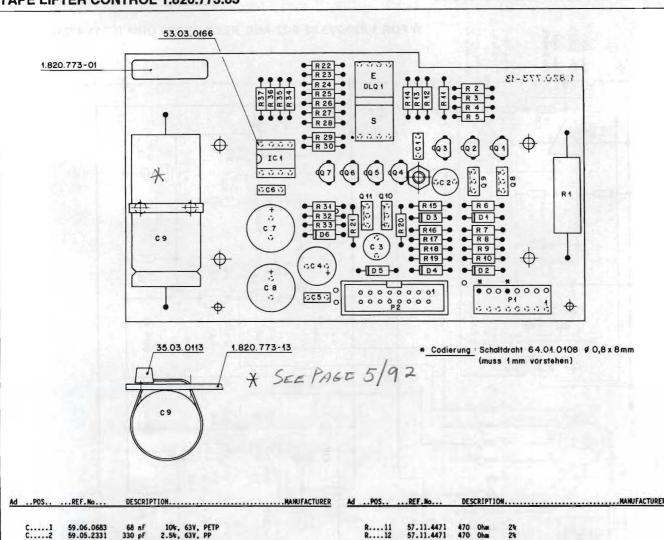
Schild 1.820.772-01 aufgeklebt nach Fabrikationsmuster

| MANUFACTU              | ION  | DESCRIPT          | REF.Mo                   | dPOS.,        |
|------------------------|--|-------------------|--------------------------|---------------|
|                        | 25V, Sa1   | 1.5 uF            | 59.26.5159               | C1            |
|                        | 25V, Sal   | 1.5 uF            | 59.26.5159               | C2            |
| ITT, Mot, Ph, Tf, SGS, | BZX 55 C6V2  | 6.2 Y Z           | 50.04.1118               | D1            |
| ITT, Mot, Ph, Tf, SGS, | BZX 55 C6V8  | 6.8 V Z           | 50.04.1102               | D2            |
| ITT. Mot. Ph. Tf. SGS. | BZX 55 C6V2  | 6.2 V Z           | 50.04.1118               | D3            |
| Fc,1TT,Ph,SES          |  | 1 N 4448          | 50.04.0125               | D4            |
| NEC                    | uPC 4559   | RC 4559 NB        | 50.09.0107               | IC1           |
|                        | see note 1   | 10 cont.          | 54.14.2001               | P1            |
|                        |  |                   | 54.02.0320               | P2            |
|                        |  |                   | 54.02.0320               | P2            |
|                        |  |                   | 54.02.0320               | P2            |
|                        |  | 1 kOhm            | 57.11.4102               | R1            |
|                        |  | 10 kOhm           | 57.11.4103               | R2            |
|                        |  | 4.7 kOhm          | 57.11.4472               | R3            |
|                        |  | 8.2 kOhm          | 57.11.4822               | R4            |
|                        |  | 1 kOhm            | 57.11.4102               | R5            |
|                        | Annual Sense   | 1.2 kOhm          | 57.11.4122               | R6            |
|                        | see note 2   | 2 kOhm            | 58.05.1202               | R7            |
|                        |  | 9.1 kOhm          | 57.11.3912               | R8            |
|                        | see note 3   | 20 kOhm<br>47 Ohm | 58.05.1203<br>57.11.4470 | R9<br>R10     |
|                        |  | 15 kOhm           | 57.11.3153               | R11           |
|                        |  | 47 Ohm            | 57.11.3470               | R12           |
|                        |  | Testpoint         | 54.02.0320               | TP1           |
|                        |  | Testpoint         | 54.02.0320               | TP2           |
|                        |  | . wacpoint        |                          | ote 1 - Conn  |
|                        | BPH 7 B 10 BOO GS  |                   | Burndy                   |               |
|                        | FAP-10-08//4   |                   | Yamaichi                 |               |
|                        |  | ter, linear       | Ohm Potentions           | ote 2 - 2 ki  |
|                        | E 28 202   | ley               | Allan Brad               |               |
|                        | 386 F-1-202  |                   | Bourns                   |               |
|                        | 63 M 202 T010  |                   | Spectro!                 |               |
|                        |  |                   | Ohm Potentione           | ote 3 - 20 kg |
|                        | E 2B 203   | ley               | Allan Brad               |               |
|                        | 386 F-1-203<br>63 M 203 T010                                     |                   | Spectrol                 |               |
|                        |  |                   | luminium.                | al = Solid A  |
|                        | etall, Mot-Motorola,<br>os, Ra=Raytheon, SGS<br>, If=Telefunken. | ., Ph-Philip      | Electric Corp            | AMUFACTURER:  |
| BD 88/11/2900          | CENCOD DE  | TADE TENETO       | 1.820.772.81             |               |



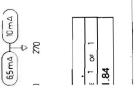
EDITION: OKTOBER 1993

# TAPE LIFTER CONTROL 1.820.773.83



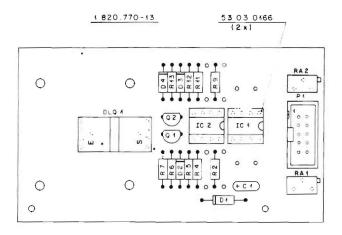
| 4 3 11 5 | REF.No     |           |  |                      |               |                          |                     |               |                    |
|----------|------------|-----------|--|----------------------|---------------|--------------------------|---------------------|---------------|--------------------|
| c1       | 59.06.0683 | 68 nF     | 104, 63V, PETP                           |                      | R11           | 57.11.4471               | 470 Ohm             | 2%            |                    |
| C2       | 59.05.2331 | 330 pF    | 2.54, 63V, PP                            |                      | R12           | 57.11.4471               | 470 Ohm             | 2%            |                    |
| C3       | 59.05.2331 | 330 pF    | 2.5%, 63V, PP                            |                      | R13           | 57.11.4471               | 470 Ohm             | 24            |                    |
| C4       | 59.22.4101 | 100 uF    | 104, 16V, E1                             |                      | R14           | 57.11.4222               | 2.2 kOhm            | 2%            |                    |
| C5       | 59.06.0683 | 68 nF     | 104. 63V. PETP                           |                      | R15           | 57.11.4821               | 820 Ohm             | 2%            |                    |
| C6       | 59.06.0683 | 68 nF     | 10%, 63V, PETP                           |                      | R16           | 57.11.4689               | 6.8 Ohm             | 54            |                    |
| C7       | 59.22.6471 | 470 uF    | 104, 40V, E1                             |                      | R17           | 57.11.4689               | 6.8 Ohm             | 54            |                    |
| C8       | 59.22.6471 | 470 uf    | 104, 40V, E1                             |                      | R18           | 57.11.4689               | 6.8 Ohm             | 54            |                    |
| C9       | 59.25.6102 | 1000 uF   | 63Y, E1                                  |                      | R19           | 57.11.4689               | 6.8 Ohm             | 54            |                    |
|          |            |           |  |                      | R20           | 57.11.4821               | 820 Ohm             | 2%            |                    |
| D1       | 50.04.0122 | 1N 4001   | 1N 4004                                  | Hot                  |               |                          |                     | -             |                    |
| D2       | 50.04.0122 | IN 4001   | 1N 4004                                  | Hot                  | R21           | 57.11.4821               | 820 Ohm             | 24            |                    |
| D3       | 50.04.0122 | IN 4001   | IN 4004                                  | Hot                  | R22           | 57.11.4161               | 160 Ohm             | 24            |                    |
| D4       | 50.04.0122 | IN 4001   | 1N 4004                                  | Hot                  | R23           | 57.11.4161               | 160 Ohm             | 24            |                    |
| D5       | 50.04.0512 | IN 5818   | IN 5819                                  | Hot                  | R24           | 57.11.4561               | 560 Ohm             | 24            |                    |
| D6       | 50.04.0125 | IN 4448   | IN 3019                                  | Fc, 1TT, Ph, Ses, Tf | R25           | 57.11.4561               | 560 Ohm             | 24            |                    |
| D        | 30.04.0123 | TH 4440   |  | rc,111,rn,3es,11     | R26           | 57.11.4102               | 1 kOhm              | 24            |                    |
| DLQ1     | 50.99.0166 | OPB 826S  |  | 0-                   | R27           | 57.11.4103               | 10 kOhm             | 24            |                    |
| DLQ1     | 30.39.0100 | UPB 0203  |  | Ор                   | R28           | 57.11.4103               | 10 kOhm             | 24            |                    |
| 10 1     | 50.15.0114 |           |  | ** *.                | R29           | 57.11.4222               | 2.2 kOhm            | 24            |                    |
| 1C1      | 50.15.0114 | uA 9637A  |  | TI,Fc                | R30           | 57.11.4222               | 2.2 kOhm            | 24            |                    |
| P1       | 54.01.0289 |           | see note 1                               |                      | K30           | 5/.11.4222               | 2.2 KUNM            | 24            |                    |
| P2       | 54.14.2002 |           | see note 2                               |                      | R31           | 57.11.4102               | 1 kOhm              | 24            |                    |
| P2       | 34.14.2002 |           | see note 2                               |                      | R32           | 57.11.4222               |                     | 24            |                    |
| 0 1      | 50.03.0515 | BC 307 B  | BC 251 B, BC 557 B                       | ITT, Mot, Ph         | R32           | 57.11.4563               | 2.2 kOhm<br>56 kOhm | 24            |                    |
| 02       | 50.03.0436 | BC 237 B  | BC 547 B, BC 550 B                       | ITT, Mot, Ph, Sie    |               |                          |                     |               |                    |
| 03       | 50.03.0436 | BC 237 B  | BC 547 B, BC 550 B                       | ITT, Mot, Ph, Sie    | R34           | 57.11.4102<br>57.11.4102 | 1 kOhm<br>1 kOhm    | 24            |                    |
| 04       | 50.03.0436 | BC 237 B  | BC 547 B, BC 550 B<br>BC 547 B, BC 550 B | ITT. Mot. Ph. Sie    | R35           |                          |                     | 24            |                    |
| 05       | 50.03.0436 | BC 307 B  | BC 251 B, BC 557 B                       | 1TT, Mot, Ph         | R36           | 57.11.4152               | 1.5 kOhm            |               |                    |
|          | 50.03.0436 | BC 237 B  | BC 547 8, BC 550 B                       |                      | R37           | 57.11.4272               | 2.7 kOhm            | 24            |                    |
| Q6       | 50.03.0436 | BC 237 B  |  | ITT, Mot, Ph, Sie    |               |                          |                     |               |                    |
| Q7       |            |           | BC 547 B, BC 550 B                       | ITT, Mot, Ph, Sie    | Note 1 - Conn | ector: AMP N             | r103.080            | -6            |                    |
| Q8       | 50.03.0451 | BO 139-10 |  | Mot, Ph, SGS, Tf, To |               |                          |                     |               |                    |
| Q9       | 50.03.0452 | BD 140-10 |  | Mot, Ph, SGS, Tf. To | Note 2 - Conn |                          |                     |               |                    |
| Q10      | 50.03.0452 | BD 140-10 |  | Mot, Ph, SGS, Tf. To |               | Burnd                    | y Nr. BPH           | 9 8 16 BOO GS |                    |
| Q11      | 50.03.0451 | BD 139-10 |  | Mot, Ph, SGS, Tf, To | El-Electrolyt | ic, PP=Polypr            | opy lene            |               |                    |
| R1       | 57.56.5680 | 68 Ohm    | 104, 4 W                                 |                      | Manufacturer: | fc=fairchild             | . III-Intere        | etall. Mot=Mo | torola, Op=Optron, |
| R2       | 57.11.4471 | 470 Ohm   | 2%                                       |                      |               |                          |                     |               | s. Sie-Siemens.    |
| R3       | 57.11.4222 | 2.2 kOhm  | 24                                       |                      |               |                          |                     | Instruments.  |                    |
| R4       | 57.11.4222 | 2.2 kOhm  | 24                                       |                      |               |                          |                     |               |                    |
| R5       | 57.11.4222 | 2.2 kOhm  | 24                                       |                      |               | 1.820.773.83             | TAPE LIFTED         | CONTROL       | VF 91/03/2800      |
| R6       | 57.11.4821 | 820 Ohm   | 24                                       |                      |               |                          |                     | COMMOL        | 11 72/05/2000      |
| R7       | 57.11.4689 | 6.8 Ohm   | 54                                       |                      |               |                          |                     |               |                    |
| R8       | 57.11.4689 | 6.8 Ohm   | 54                                       |                      |               |                          |                     |               |                    |
| R9       | 57.11.4689 | 6.8 Ohm   | 54                                       |                      |               |                          |                     |               |                    |
| R10      | 57.11.4689 | 6.8 Ohm   | 54                                       |                      |               |                          |                     |               |                    |

MC



# MOVE SENSOR 1.820.770.82





DLQ4 satt aufllegend auf Bestückungsseite montiert

| Ad  | Pas        | RE F No       | DESCRIPI   | rion               |                       |
|-----|------------|---------------|------------|--------------------|-----------------------|
|     |            |               |            |                    |                       |
|     |            |               |            |                    |                       |
|     | c1         | 59.25.2100    | 10 uF      | 20%, 16V, Sal      |                       |
|     | C2         | 00.00,0000    | not used   |                    |                       |
|     | C3         | 00.00.0000    | not used   |                    |                       |
|     | D1         | 50.04.0512    | 1M 5818    | 1M 5918            | Not                   |
|     | D2         | 50.04.0127    | BAT 42     | BAT 85, BAS 40-02, | Ph. Sie, Tho          |
|     | 03         | 50.04.0127    | BAT 42     | BAT 85, BAS 40-02. | Ph.Sie.Tho            |
|     | 04         | 50.04.1107    | 3,3V Z     | BZX 55-C3V3        | ITT, Mot, Ph, Tf, Tho |
|     | DLQ1       | 50.99.0166    | OPB 826    |                    | 0-                    |
|     | DLQ1       | 30.33.0100    | OF D CE O  |                    | 0р                    |
|     | IC1        | 50.15.0114    | WA9637ACP  | 9637 ATC           | Fc,TI                 |
|     | IC2        | 50.05.0286    | LM 358 N   | LH 358 P           | MS, Mot, SGS, Ti      |
| 01  | IC2        | 50.09.0122    | TLC 272 C  | TS 272 CM          | SGS, Ti               |
|     | P1         | 54.14.2001    | 10 cont.   | see note 1         |                       |
|     | 01         | 50.03.0351    | BC 327-25  |                    | ITT,Ph.Sie            |
|     | 02         | 50.03.0351    | BC 327-25  |                    | ITT,Ph,Sie            |
|     |            |               |            |                    | 111,711,516           |
|     | R1         | 00.00.0000    | not used   |                    |                       |
|     | R2         | 57.11.3224    | 220 k0hm   | 1%                 |                       |
|     | R3         | 00.00.0000    | not used   |                    |                       |
|     | R4         | 57.11.3102    | 1 kOhe     | 14                 |                       |
|     | R5         | 00.00.0000    | factory    | adjusted           |                       |
|     | R6         | 57.11.3181    | 180 Ohm    | 14                 |                       |
|     | R7         | 57.11.3181    | 180 Ohm    | 14                 |                       |
|     | RB         | 00.00.0000    | not used   |                    |                       |
|     | R9<br>R10  | 57.11.3224    | 220 kOhm   | 14                 |                       |
|     | K10        | 00.00.0000    | not used   |                    |                       |
|     | R11        | 57.11.3102    | 1 kOhm     | 18                 |                       |
|     | R12        | 00.00.0000    | factory    | adjusted           |                       |
|     | R13        | 57.11.3271    | 270 Ohm    | 14                 |                       |
|     | RA1        | 58.05.0202    | 2 kOhma    | 10% multi turn     |                       |
|     | RA2        | 58.05.0202    | 2 kOhm     | 10% multi turn     |                       |
|     |            | 00100.000     | E KOII     | 104 march tarm     |                       |
| (01 | ) 11.01.90 | Printout err  | or         |                    |                       |
| Not | e 1 - Conn | ector 10 cont |            |                    |                       |
|     |            |               |            | FAP-10-08-40SS     |                       |
|     |            |               | Burndy nr. | BPH 9 810 BOO GS   |                       |
|     |            |               | 3M nr.     | 7610-6002 VZ       |                       |

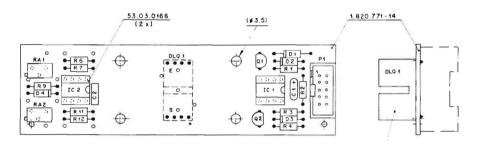
El=Electrolytic, Sal=Solid aluminium

MAMUFACTURER: Fc=Fairchild, ITT=Intermetall, Mot=Motorola, MS=Mational Semiconductor, Op=Optron, Ph=Philips, SGS=SGS/Ates, Sie=Siemens, If=Telefunken, Tho=Thomson, TI=Texas Instrument.

1.820.770.82 MOVE SEMSOR PZ 89/11/1500
1.820.770.82 MOVE SEMSOR PZ 90/01/1101

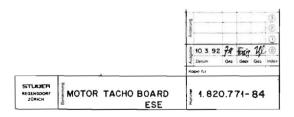
#### MOTOR TACHO 1.820.771.84





DLQ4 satt aufliegend auf Lötseite montrert Nach der Montage, beschichtet mit Epoxid - Lack nach BV 682 . Hierbei 4 Bohrungen 63,5 abgedeckt mit Klebband (müssen frei bleiben von Lack).

43.01 0108 und Schild 1.820.771-01 aufgeklebt nach Fabrikationsmuster.



(01) 11.01.90 Printout error

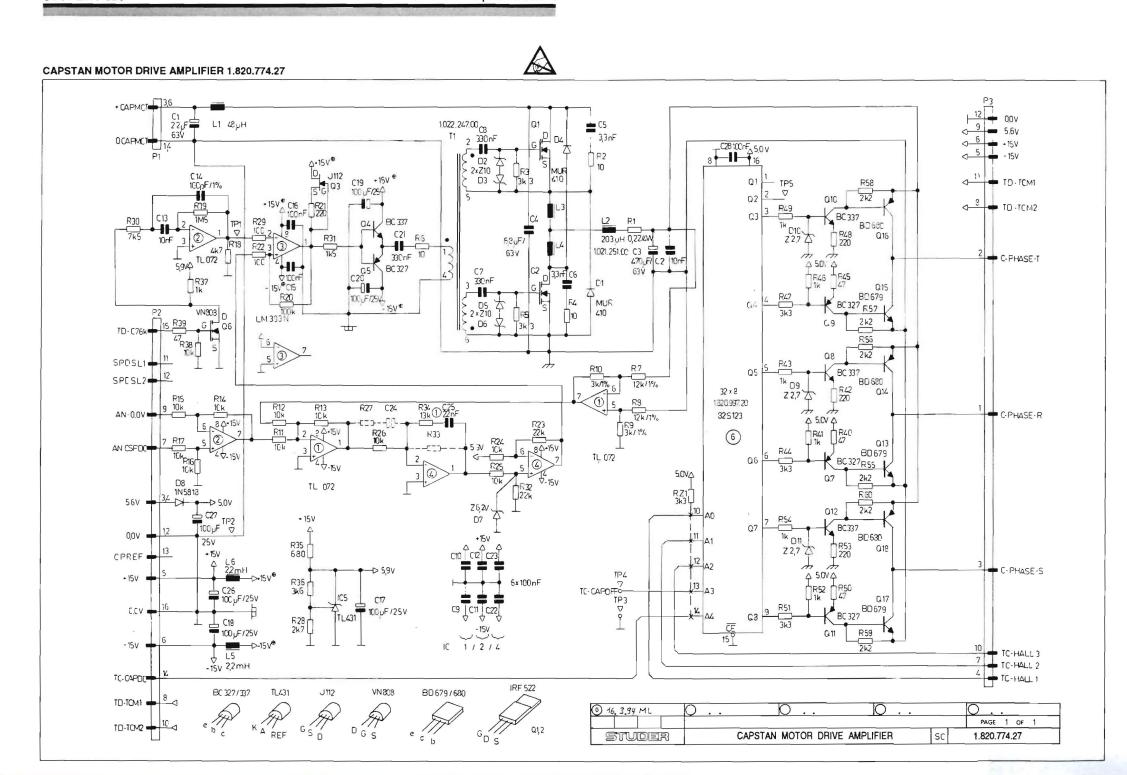
ote 1 - Connector 10 contacts:

ontacts: Yamaichi mr. FAP-10-08-40SS Burndy mr. BPH 9 810 B00 GS 3M mr. 7610-6002 YZ

El-Electrolytic, Sel-Solid eluminium

MANUFACTURER: Fc=Fairchild, ITT=Intermetall, Mot=Motorola, MS=Mational Semiconductor, Op=Optron, Ph=Philips, SGS=SGS/Ates, Si==Sisemess, IT=islanken, Th==Thmesson, IT=Lozas Instrument.

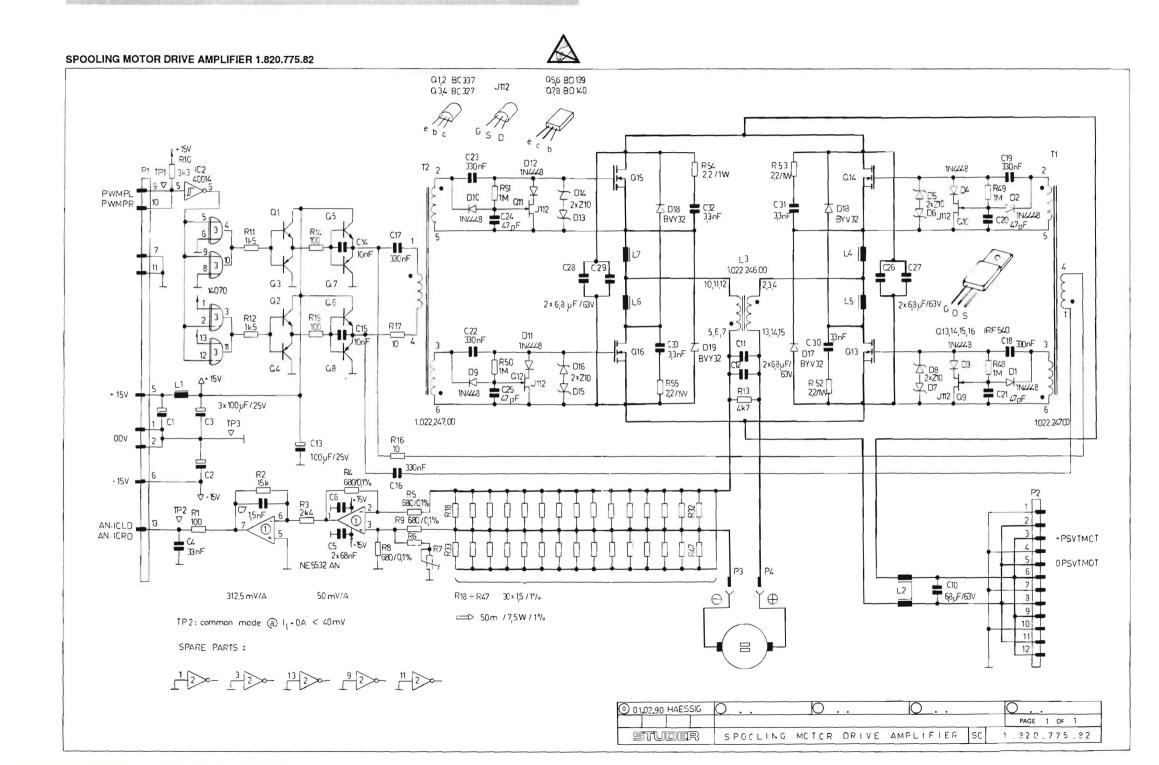
> 1.820.771.83 MOTOR TACHO PZ 89/11/1500 1.820.771.83 MOTOR TACHO PZ 90/01/1101

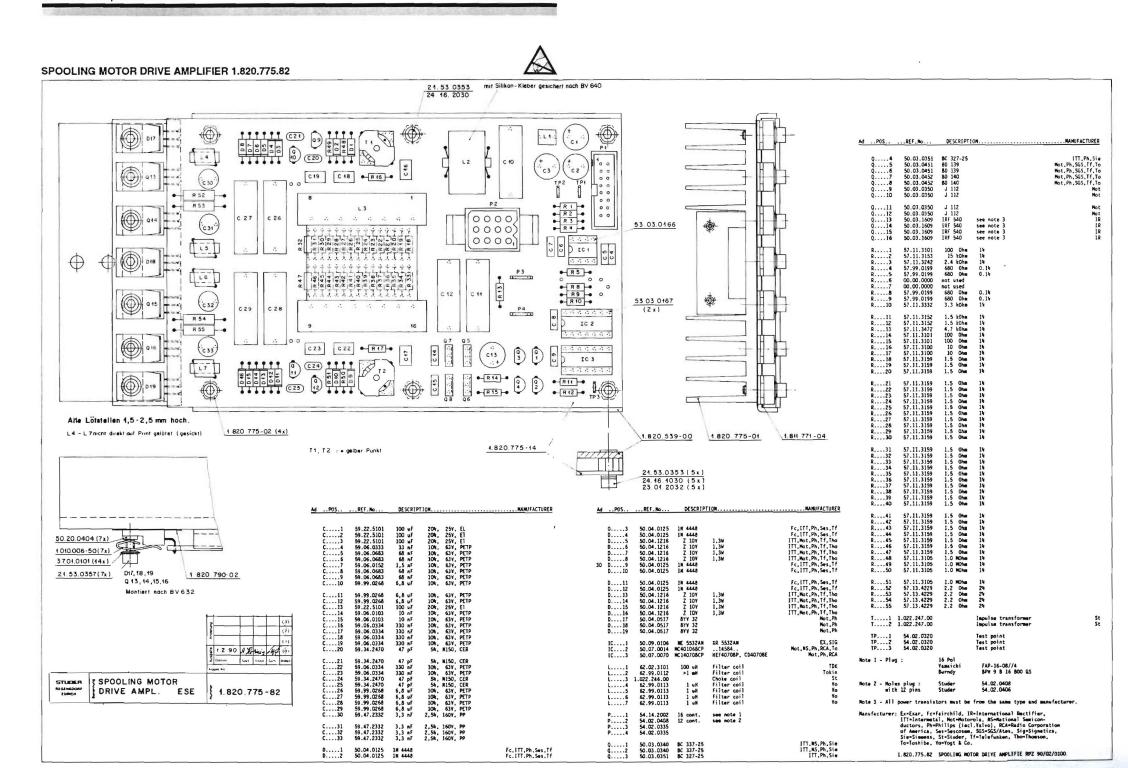




# **CAPSTAN MOTOR DRIVE AMPLIFIER 1.820.774.27**

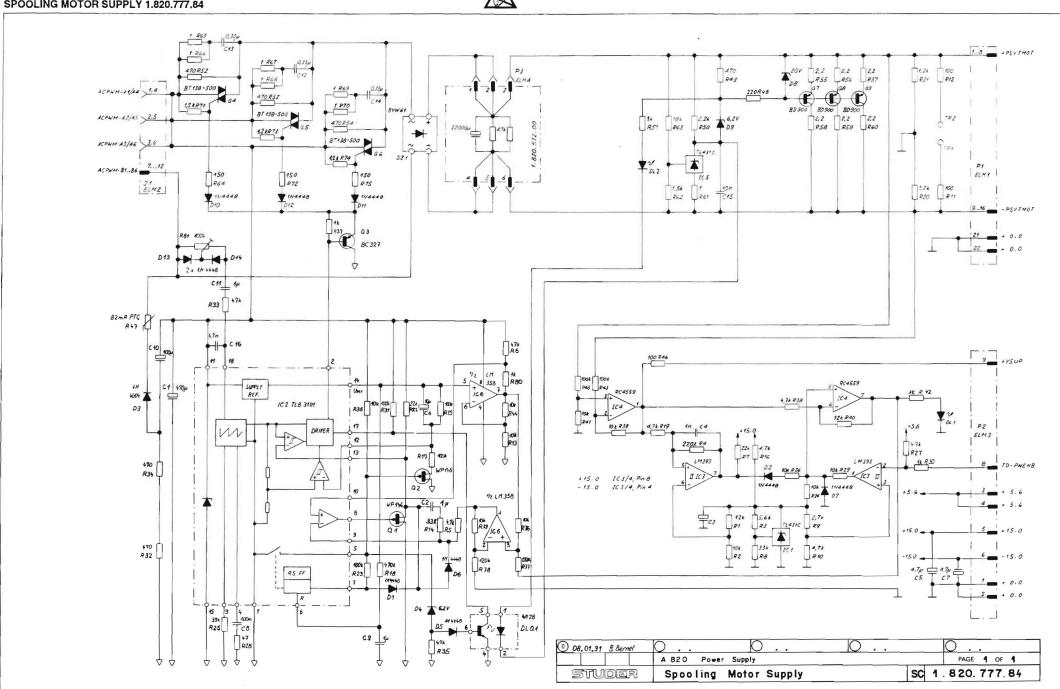
| CAPSTAN MOTOR DRIVE AMPLIFIER 1.820.774.27           |  |
|--|--|
|  | Ad .POSREF.No. DESCRIPTION   |
| Ansicht A - A  | C26 59;22;5101 100 uf -20%, 25%; El R48 59;11:3122 120 Ohm 104 C27 59;25;5101 100 uf -20%, 25%; El R49 59;11:3102 100h 104 C28 59;06;0104 100 uf -20%, 25%; El R49 59;11:3102 100h 104 C28 59;06;0104 100 uf -20%, 25%; El R49 59;11:3107 170h 104 C28 59;06;0104 100 uf -20%, 25%; El R49 59;11:3107 120h 104 C28 59;06;0104 100 uf -20%, 25%; El R49 59;11:3107 120h 104 C28 50;04;1216 2 10 V S4, 1.3M 11T,Hot,Ph,Tf,555 R52 57;11:3102 22 k0hm 104 C5 50;04;1216 2 10 V S4, 1.3M 11T,Hot,Ph,Tf,555 R55 57;11:322 22; El0m 104 C5 50;04;1216 2 10 V S4, 1.3M 11T,Hot,Ph,Tf,555 R55 57;11:322 22; El0m 104 C5 50;04;1116 2 2 V S4, 4.0M 11T,Hot,Ph,Tf,555 R55 57;11:322 22; El0m 104 C6 50;04;1016 2 2 7 V S4, 4.0M 11T,Hot,Ph,Tf,555 R55 57;11:322 22; El0m 104 C6 50;04;106 2 2 7 V S4, 4.0M 11T,Hot,Ph,Tf,555 R55 57;11:322 22; El0m 104 C1 50;09;0101 T 1:072 CP C2 50;09;0101 T 1:072 CP C2 50;09;0101 T 1:072 CP C3 50;05;223 LM 393 LM 304 C4 50;09;0101 T 1:072 CP C5 50;00;0101 T 1:072 CP C5 50;0   |
| 53.03.0166 Tf: • gelber Punkt                        | 01 50.03.1502 [R7 522 MTP 8HID IR.Not Contact pin: Studer Nr. 03-06-2061 [R.Not Online Proceedings of the Processing   |
| STUDER PROTECTION MOTOR DRIVE AMPL. ESE 1.820.774-27 | Color   Colo |





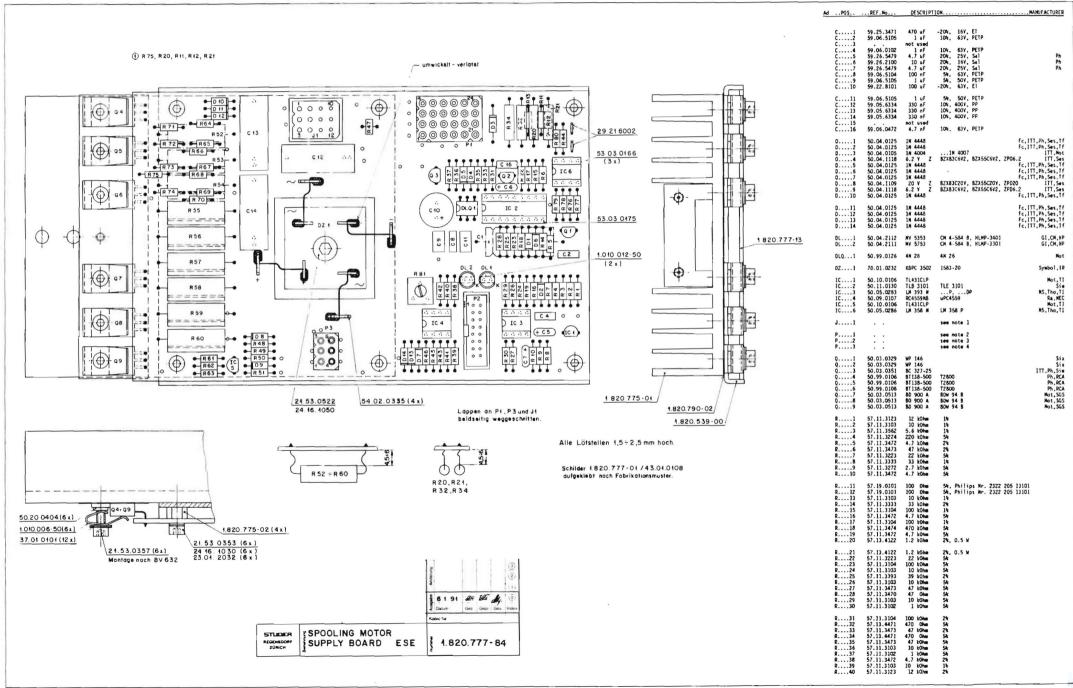


## SPOOLING MOTOR SUPPLY 1.820.777.84





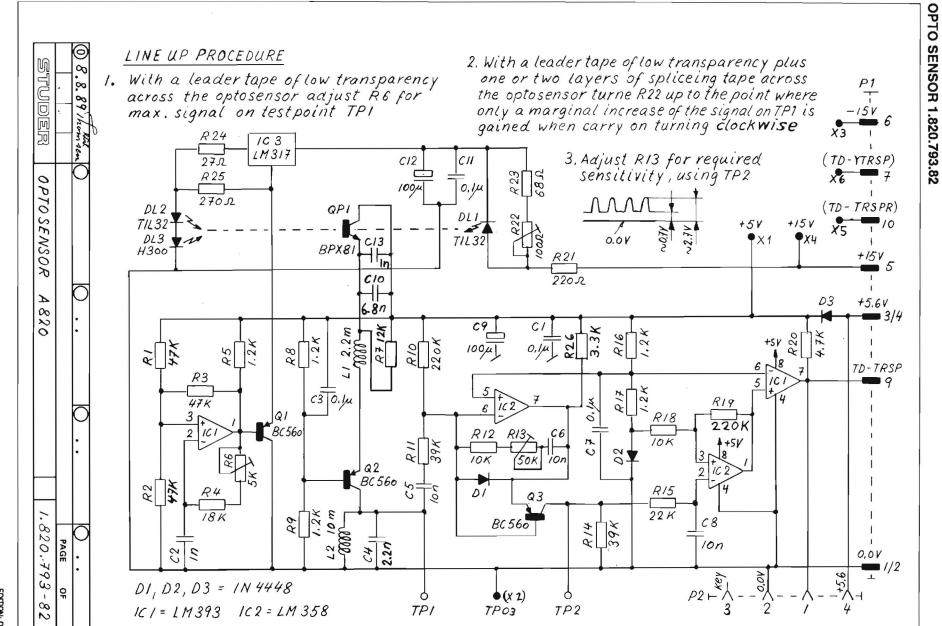
#### SPOOLING MOTOR SUPPLY 1.820.777.84



# A

# SPOOLING MOTOR SUPPLY 1.820.777.84

| 3FOOLING MOTOR 30FFLT 1.020.777.04  |  |
|---|--|
| AdPOS.,REF.No DESCRIPTIONMANUFACTURER   |  |
| R41 57.11.3103 10 kOhm 1½ R42 57.11.3102 1 kOhm 5½ R43 57.11.3104 100 kOhm 1½ R44 57.11.3103 10 kOhm 1½ R45 57.11.3104 100 kOhm 1½ R45 57.11.3104 100 kOhm 1½ R46 57.11.3101 100 kOhm 1½ R46 57.11.3101 100 Ohm 5½ R47 57.92.1820 82 mA PTC-Resistor, Philips nr. 2322 660 18291 R48 57.11.3221 220 Ohm 5½ R49 57.11.3221 220 Ohm 5½ R49 57.11.3222 2.2 kOhm 5½ R50 57.11.3222 2.2 kOhm 5½  |  |
| R51 57.11.3102 1 kOhm 5½ R52 57.56.4471 470 Ohm 5½, 4 M R53 57.36.4471 470 Ohm 5½, 4 M R54 57.56.4471 470 Ohm 5½, 4 M R55 57.56.4471 470 Ohm 5½, 4 M R55 57.56.5229 2.2 Ohm 10½, 4 M R55 57.56.5229 2.2 Ohm 10½, 4 M R57 57.56.5229 2.2 Ohm 10½, 4 M R58 57.56.5229 2.2 Ohm 10½, 4 M R58 57.56.5229 2.2 Ohm 10½, 4 M R59 57.56.5229 2.2 Ohm 10½, 4 M R59 57.56.5229 2.2 Ohm 10½, 4 M R59 57.56.5229 2.2 Ohm 10½, 4 M                        |  |
| R61 57.11.3109 1 0hm 5½ R62 57.11.3152 1.5 k0hm 1½ R63 57.11.3151 150 0hm 5½ R64 57.11.3151 150 0hm 5½ R65 57.11.3109 1 0hm 5½ R66 57.11.3109 1 0hm 5½ R67 57.11.3109 1 0hm 5½ R68 57.11.3109 1 0hm 5½ R69 57.11.3109 1 0hm 5½  |  |
| R71 57.11.3122 1.2 kOhm 5% R72 57.11.3151 150 Ohm 5% R73 57.11.3122 1.2 kOhm 5% R74 57.11.3122 1.2 kOhm 5% R75 57.11.3122 1.2 kOhm 5% R76 57.11.3121 150 Ohm 5% R77 57.11.3103 10 kOhm 1% R77 57.11.3103 10 kOhm 1% R79 57.11.3124 120 kOhm 1% R79 57.11.3124 120 kOhm 1% R79 57.11.3103 10 kOhm 1% R79 57.11.3103 10 kOhm 1% R80 57.11.3102 1 kOhm 1%  |  |
| R81 58.01.8104 100 k0hm 10%  Mote 1 - Case for 12 contacts: Studer Mr. 54.02.0408  Molex Mr. 03-06-2121  Contact pin ( 6 pieces ): Studer Mr. 54.02.0406  |  |
| Molex Mr. 02-06-8103<br>  Socket ( 6 pieces ):  |  |
| Mote 2 - Case for 24 contacts: Studer Nr. 54.02.0416 Molex Nr. 03-06-1241 Contact pin ( 24 pieces ): Studer Nr. 54.02.0406 Molex Nr. 02-06-8103   |  |
| Note 3 - Connector 16 contacts: Studer Nr. 54.14.2002<br>Yamaichi Nr. FAP-16-08//4<br>Burndy Nr. BBW 9 8 16 BO GS   |  |
| Note 4 - Case for 6 contacts: Studer Nr. 54.02.0417  Molex Nr. 03-06-1061  Sockets (6 pieces ): Studer Nr. 54.02.0407  Molex Nr. 02-06-7103   |  |
| El=Electrolytic, Sal=Solid aluminium,<br>PETP=Polyesterfilm, PP=Polypropylen.   |  |
| MANUFACTURER: CM=Chicago Miniatur, Fc=Fairchild, Gl=General Instruments, NP=Hewlett Packard, IR=Intarnational Rectifier, ITT=Intermetall, Mot=Motorola, MCC=Mippon Electric Corporation, MS=National Semiconductors, Ph=Philips, Ra=Raytheon, RCA=Radio Corporation of America, Ses=Sescosem, SGS=SGS/Ates, Sie=Siemens, Six=Siliconix, Tf=Telefunken, Tho=Thomson, Tl=Texas Instruments,  1.820.777.84 SPOOLING MOTOR SUPPLY VF 91/01/0800 |  |
|   |  |

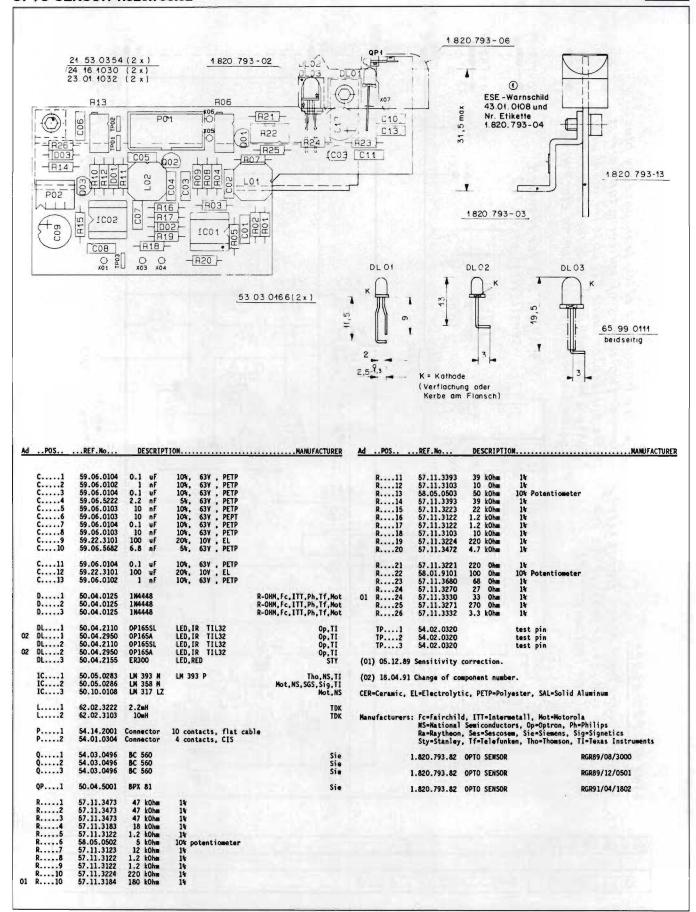






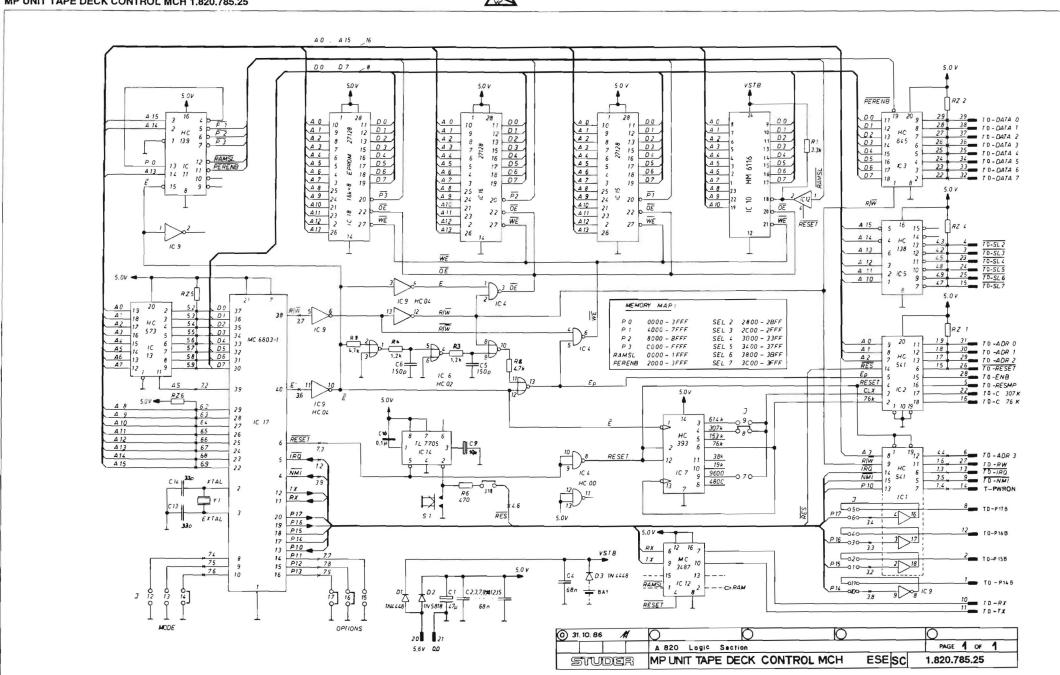
# **OPTO SENSOR 1.820.793.82**



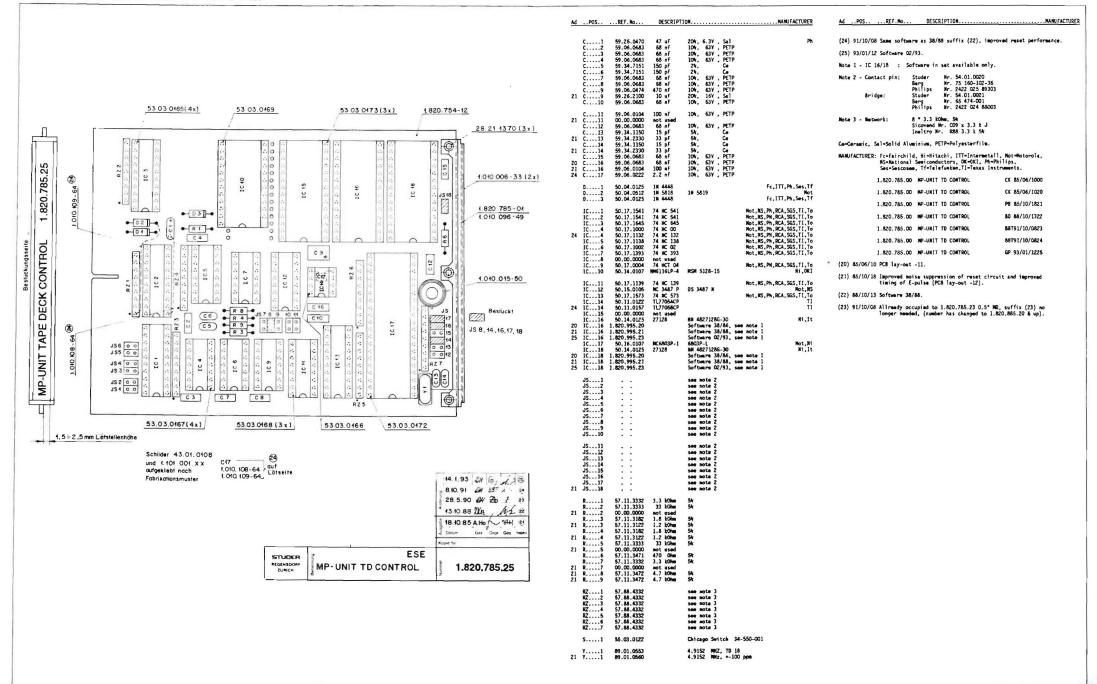


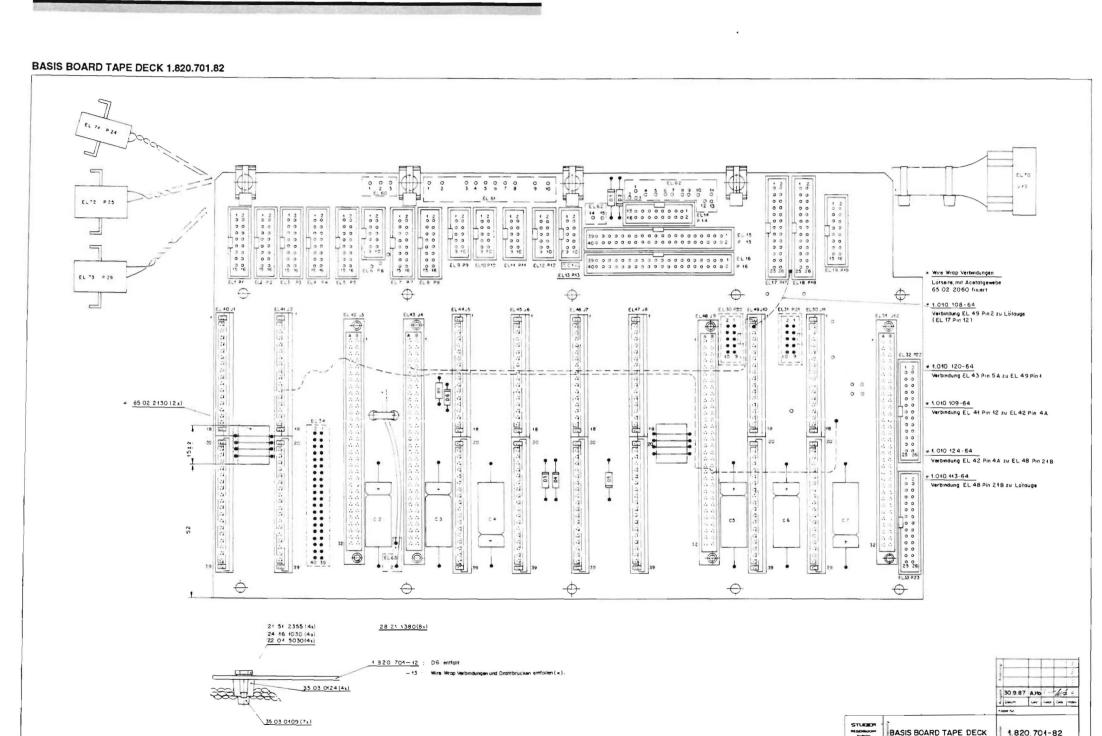


MP UNIT TAPE DECK CONTROL MCH 1.820.785.25



### MP UNIT TAPE DECK CONTROL MCH 1.820.785.25





#### B BASIS BOARD TAPE DECK 1.820.701.82

| dP05  | REF.No   | DESCRIPTI   | ON   | MANUFACTURER  | Ad POS,.     | REF. No   | DESCRIPTIO                           | א(   |                   |
|---|--|---|--|---|--------------|---|--------------------------------------|--|-------------------|
| C1<br>C2<br>C3<br>C4<br>C5<br>C6                          | 59.06.0683<br>59.25.1102<br>59.25.3471<br>59.25.3471<br>59.25.1102<br>59.25.1102<br>59.25.3471 | 68 nF<br>1000 uF<br>470 uF<br>470 uF<br>1000 uF<br>470 uF                     | 20%, PETP<br>-10%, 6.3%, £1<br>-10%, 16%, £1<br>-10%, 16%, £1<br>-10%, 6.3%, £1<br>-10%, 16%, £1   |   | 2            | se, 3 circuits,   | Molex Nr.<br>Studer Nr.<br>Molex Nr. | 54.02.0401<br>03-06-1031<br>54.02.0412<br>02-06-1131 |                   |
| D1<br>O2<br>D3<br>O4<br>D5<br>O6                          | 50.04.0122<br>50.04.0122<br>50.04.0122<br>50.04.1503<br>50.04.0122<br>50.04.0125               | 1N 4001<br>1N 4001<br>1N 4001<br>7.5 Y Z<br>1N 4001<br>1N 4448                | 1N 4004<br>1N 4004<br>1N 4004<br>BZX 85 C 775<br>1N 4004<br>see note 10  | ITT, Mot<br>ITT, Mot<br>ITT, Mot<br>Ses<br>ITT, Mot<br>Fc, ITT, Ph, Ses, Tf | El=Electroly | B lay-out -13 or<br>ytic, PETP=Polye<br>R: Fc=Fairchild,<br>Ses=Sescosem, | sterfilm                             |  | rola, Ph=Philips, |
| J1 J2 J3 J4 J5 J6 J7 J8 J9 J10                            | 00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.0  |   | 18 + 20 contacts, see n<br>18 + 20 contacts, see n<br>2 * 32 contacts, see n<br>18 + 20 contacts, see n<br>2 * 32 contacts, see n<br>18 + 20 contacts, see n<br>18 + 20 contacts, see n | ote 1 oute 2 ote 2 ote 1 ote 1 ote 1 ote 1 ote 1 ote 1                      | END +        | 1.820.701.82  | BASIS BOARD 1                        | APE DECK   | BD 87/09/3000     |
| J11<br>J12<br>J13   | 00.00.0000<br>00.00.0000<br>00.00.0000   |   | 18 + 20 contacts, see n<br>2 * 32 contacts, see n<br>24 contacts, see n  | ote 2   |              |   |                                      |  |                   |
| P1<br>P2<br>P3<br>P4<br>P5<br>P6<br>P7<br>P8<br>P9<br>P10 | 00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.0000<br>00.000.0                 |   | 16 contacts, see n<br>16 contacts, see n<br>16 contacts, see n<br>16 contacts, see n<br>10 contacts, see n   | ote 4 ote 4 ote 4 ote 4 ote 5 ote 5 ote 5                                   |              |   |                                      |  |                   |
| P   | 00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.0  |   | 10 contacts, see m<br>10 contacts, see m<br>10 contacts, see m<br>16 contacts, see m<br>40 contacts, see m<br>40 contacts, see m<br>26 contacts, see m<br>16 contacts, see m<br>10 contacts, see m   | ote 5 ote 5 ote 4 ote 6 ote 6 ote 7 ote 7                                   |              |   |                                      |  |                   |
| P 21<br>P 22<br>P 23<br>P 24<br>P 25<br>P 26              | 00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.0  |   | 10 contacts, see n. 26 contacts, see n. 26 contacts, see n. 6 contacts, see n. 3 contacts, see n. 3 contacts, see n.   | ote 7<br>ote 7<br>ote 8<br>ote 9  |              |   |                                      |  |                   |
| R1  | 57.11.4332   |   | 3.3 kOhm   |   |              |   |                                      |  |                   |
|   | enectors:<br>ontacts,<br>ontacts,  | Studer Hr.<br>Burndy Hr.<br>Studer Hr.<br>Burndy Hr.                          | 54.10.2015<br>GCSB 18 SO 19 V1 K9<br>54.10.2026<br>GCSB 20 SO V1 K9  |   |              |   |                                      |  |                   |
| ote 2 - conn  | ector, 2 ° 32  | contects:<br>Studer Mr.<br>Burndy Mr.<br>Philips Mr.<br>Erni Mr.              | 54.11.2005<br>P1 64 B 20 R00 A00 Z0<br>2422 025 89297<br>9722.543.616  |   |              |   |                                      |  |                   |
| 19 c  | ector:<br>, 24 circuits,<br>ontacts,<br>ontacts,   | Studer Nr.<br>Molex Nr.<br>Studer Nr.<br>Molex Nr.<br>Studer Nr.<br>Molex Nr. | 54.02.0415<br>03-06-2242<br>54.02.0413<br>02-06-1101<br>54.02.0412<br>02-06-1131   |   |              |   |                                      |  |                   |
| ote 4 - conn  | ector, 16 cont   | Studer Nr.<br>Yamaichi Nr   | 54.14.2002<br>FAP-16-08//4<br>BPH 9 B 16 BOO GS  |   |              |   |                                      |  |                   |
| ote 5 - comm  | ector, 10 com  | Studer Nr.<br>Yamaichi Nr   | 54.14.2001<br>FAP-10-08//4<br>BPH 7 8 10 800 GS  |   |              |   |                                      |  |                   |
| ote 6 - comm  | ector, 40 cont   | Studer Nr.<br>Yamaichi Nr   | 54.14.2004<br>FAP-40-08//4<br>BPH 9 B 40 B00 GS  |   |              |   |                                      |  |                   |
| te 7 - comm   | ector, 26 cont   | Studer Mr.<br>Yamaichi Mr   | 54.14.2003<br>FAP-26-08//4<br>BPN 9 B 26 BOO GS  |   |              |   |                                      |  |                   |
|   | ector:<br>, 6 circuits,<br>ontacts,  | Studer Hr.<br>Molex Hr.<br>Studer Hr.<br>Molex Hr.                            | 54.02.0417<br>03-06-1061<br>54.02.0413<br>02-06-1101   |   |              |   |                                      |  |                   |

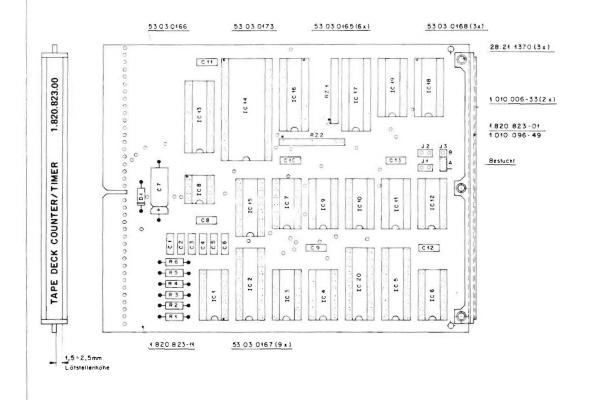
#### TAPE DECK COUNTER / TIMER 1.820.823.00 TD-MOVES 9 D 10 C 1 B 15 A 11 0 L D IC5 74HC574 9 80 8 70 7 60 6 50 5 40 4 30 3 20 2 10 80 12 70 13 70 14 60 15 40 16 30 17 20 18 10 19 34TD-05 35TD-04 35TD-03 35TD-02 35TD-01 36TD-01 1+5V IC16 74HC541 IC7 74HC14 IC19 J1 J2 AZ2 3.3k 1 1002 TD-MVCLK Pulse bei 30 inch/s 9 D C C B B 15 A L D C L D C C L 13 12 J3A-1024Hz J1+J38=64Hz J2+J38=32Hz IC2 74HC574 C2 4.7N +5V | IC10 4 74HC74 IC9 2 PH 5 5 9 8D 7D 60 5D 4D 3D 2D 1D 4<sup>I</sup>C3 6 IC7 74HC14 9<sup>IC3</sup> 8 10 8 74HC86 14TO-MVDIR 68A40 RZ1 IC14 3.3K ск IC1 74HC14 1 3 2 3 74HC86 IC20 74HC574 9 80 7 60 6 50 5 40 3 20 2 10 74HC86 1 1C107 109 12 D 74HC14 13 D 1211 IC7 74HC14 SN75463 IC9 IC9 74HC14 IC7 74HC14 74HC14 13 12 5 16 77 7 76 9 75 0 10 74 0 11 73 0 12 72 0 13 71 0 14 70 0 15 IC9 74HC14 TO-ADR3 TD-ADR2 29 TD-ADR1 30 0 16.5.89 IVA A 820 TAPE THANSPORT SECTION PAGE1 OF 1

TAPE DECK COUNTER!TIMER

SC

1.820.823-00

#### TAPE DECK COUNTER / TIMER 1.820.823.00



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Ad .. POS.. ... REF. No... DESCRIPTION.....
                                                                                                                                                                                                                                                                                                                            . MANUFACTURER
                  0.....1 50.04.0512 IN 5818 IN 5819
                                                                                                                                                                                10%, 63Y, PETP
                                                                 59.06.0472
59.06.0472
59.06.0472
59.06.0472
59.06.0472
59.06.0472
59.25.3470
59.26.0683
59.06.0683
                                                                 59.06.0683
59.06.0683
59.06.0683
                                                                                                                                                                                104, 63Y, PETP
104, 63Y, PETP
104, 63Y, PETP
                                                               50.17.1014 74 HC 14
50.17.1574 74 HC 14
50.17.1056 74 HC 85
50.17.1086 74 HC 86
50.17.1086 74 HC 85
50.17.1574 74 HC 85
50.17.1086 74 HC 85
50.17.1014 74 HC 85
50.17.1014 74 HC 14
50.05.0203 SN 75463 P
50.17.1014 74 HC 14
                                                                                                                                                                          74 HC 14 . Mot, MS, Ph, RCA, TI, To
74 HC 574 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 564 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 56 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 56 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 574 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 58 . Mot, MS, Ph, RCA, SGS, TI, To
74 HC 14 . Mot, MS, Ph, RCA, SGS, TI, To
87 75463 JG, SM 55463 JG, DS 3613 H MS, TI
74 HC 14 . Mot, MS, Ph, RCA, TI, To
74 HC 74 . Mot, MS, Ph, RCA, SGS, TI, To
                                                                                                                                                                                                                                                                        Mot, NS, Ph, RCA, SGS, TI, To
Mot, NS, Ph, RCA, SGS, TI, To
Mot, NS, Ph, RCA, SGS, TI, To
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Mot, NS, Ph, RCA, SGS, TI, To
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Mot, NS, Ph, RCA, SGS, TI, To
Mot, NS, Ph, RCA, SGS, TI, To
Mot, NS, Ph, RCA, SGS, TI, To
                                                                                                                                                                             . 74 HC 00
. 74 HC 74
. 74 HC 645
HO 68A 40P
. 74 HC 138
. 74 HC 541
. 74 HC 541
. 74 HC 193
. 74 HC 193
. 74 HC 193
. 74 HC 193
                                                               50.17,1000
50.17,1074
50.17,1645
50.16.0113
50.17,1138
50.17,1541
50.17,1541
50.17,1541
50.17,1193
50.17,1193
                                                               00.00.0000 note used
00.00.0000 note used
00.00.0000 see note 1
                                                               57.11.3101 100 Ohm
                                                                                                                                                                                   Metwork, 8 = 3.3 kOhm, 5k, single line
Metwork, 8 = 3.3 kOhm, 5k, single line
                  RZ....1 57.88.4332
RZ....2 57.88.4332
                                                                                                                                                         Nr. 54.01.0020
Nr. 75 160-102-36
Nr. 2422 025 89303
Nr. 54.01.0021
Nr. 65 474-001
Nr. 2422 024 88003
                                       Bridge
```

PETP-Polyesterfilm, El-Electrolytic

MAMUFACTURER: Mi-Mitachi, Mot-Motorola, MS=Mational Semiconductors, Ph-Philips, RCA-RCA Corporation, SGS-SGS/Ates, II-Texas Instruments, To-Toshiba.

1.820.823.00 TAPE DECK COUNTER/TIMER 80 88/10/2700

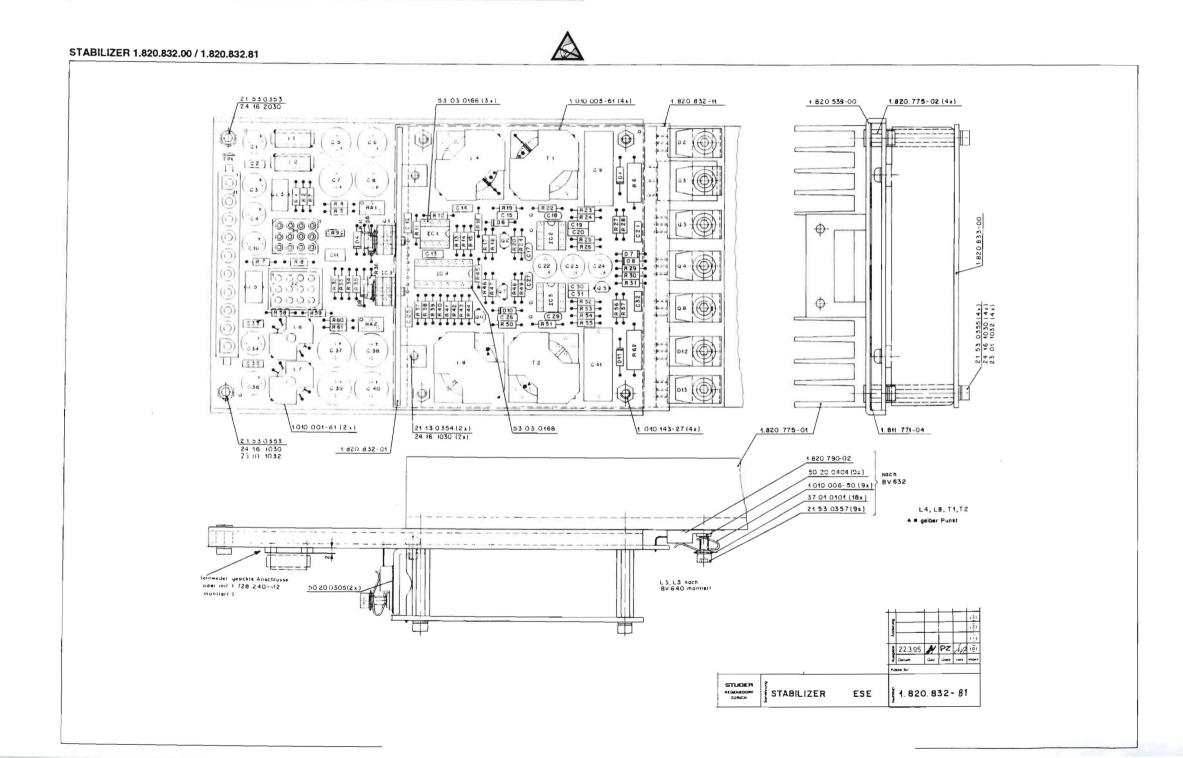


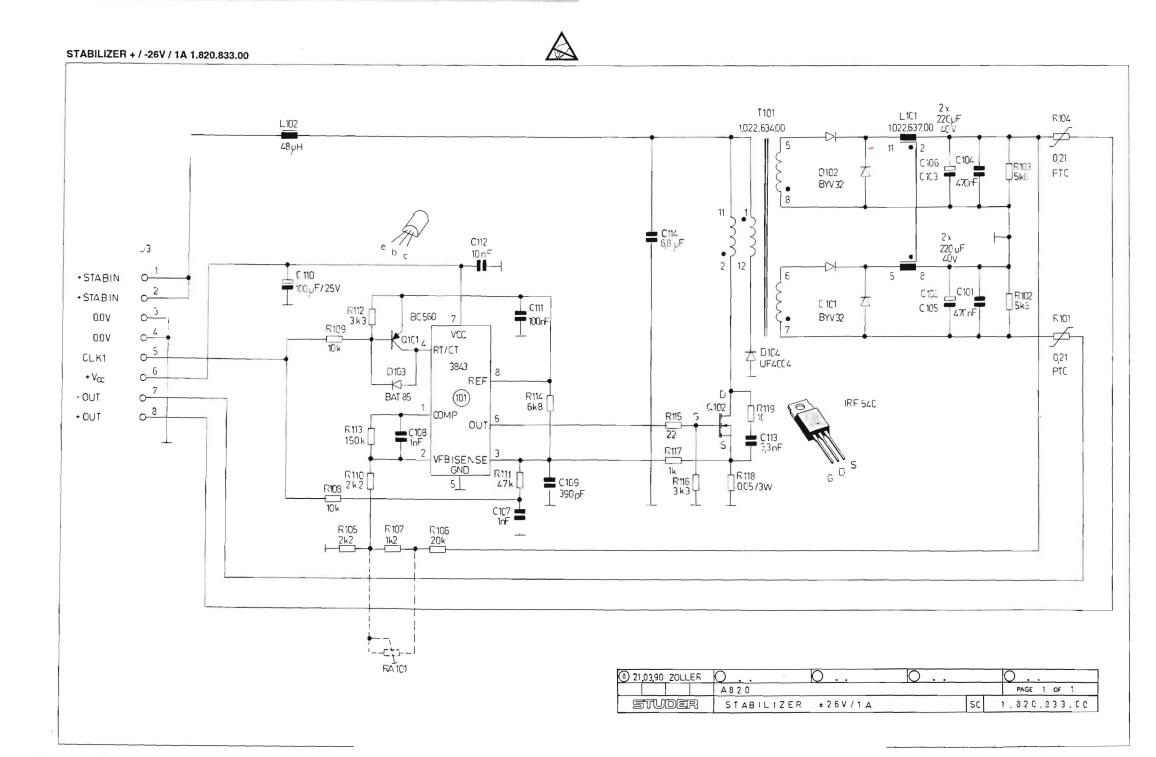
## STABILIZER 1.820.832.00

| Ad       | POS  | REF.No   | DESCRIP   | TION   | MANUFACTURER  | Ad .                                 | .POS   | REF.No  | . DESC  | RIPTION.   | ·····  |  | NUFACTURER |
|----------|--|--|---|--|---|--------------------------------------|--|---|---|--|--|--|------------|
|          | A1 C2 C3 C4 C5 C6 C7 C8 C9   | 1.820.833.00<br>59.22.6470<br>59.06.0103<br>59.22.3221<br>59.22.6221<br>59.22.6221<br>59.22.3102<br>59.22.3102<br>59.31.5685<br>59.02.0685 | 47 uF<br>10 nF<br>220 uF<br>22 uF<br>220 uF<br>200 uF<br>1000 uF<br>6.8 uF                                      | Stabilizer +/-26V -20%, 40V, EL 10%, 63V, PETP -20%, 10V, EL -20%, 63V, EL -20%, 40V, EL -20%, 40V, EL -20%, 10V, EL 10%, 63V, EL 10%, 63V, MPC          |   | R<br>R<br>R<br>R<br>R<br>R<br>R      | 11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20 | 57.11.356<br>57.11.315<br>57.11.310<br>57.11.322<br>57.11.30<br>57.11.333<br>57.11.330<br>57.11.330<br>57.11.332  | 2 1.5 k0<br>3 10 k0<br>2 2.2 k0<br>3 68 k0<br>1 100 0<br>2 3.3 k0<br>3 10 k0<br>3 10 k0<br>2 2.2 k0       | hm 14 hm 54 hm 14 hm 15 hm 55  |  |  |            |
|          | C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20                        | 59.22.8220<br>59.06.0474<br>59.06.0683<br>59.06.5102<br>59.06.5102<br>00.00.0000<br>59.32.4102<br>59.34.5302<br>59.06.0103                 | 22 uf<br>470 nF<br>68 nF<br>1 nF<br>100 nF<br>1 nF<br>390 pF<br>10 nF   | -20%, 63Y, EL  10%, 63Y, PETP 10%, 63Y, PETP 5%, 63Y, PETP 5%, 63Y, PETP 5%, 63Y, PETP not used 20%, 63Y, CER 5%, 63Y, CER 10%, 63Y, PETP 10%, 63Y, PETP |   | R<br>R<br>R<br>R<br>R<br>R<br>R<br>R | 22<br>24<br>24<br>25<br>26<br>27<br>28<br>29<br>30       | 57.11.347<br>57.11.313<br>57.11.375<br>57.11.375<br>57.11.322<br>57.11.322<br>57.11.322<br>57.11.322<br>57.11.320 | 2 1.3 k0<br>3 10 k0<br>2 7.5 K0<br>0 22 0<br>2 3.3 k0<br>0 22 0<br>0 22 0<br>0 22 0<br>2 8.2 k0<br>2 1 k0 | he 11 he 12 he 13 he 14 he 54 he 55 he 56 he 57 he 58 he 59  |  |  |            |
|          | C21<br>C22<br>C23<br>C24<br>C25<br>C26<br>C27<br>C28<br>C28<br>C29 | 59.06.0332<br>59.22.5101<br>59.22.5101<br>59.22.5101<br>59.06.0103<br>59.06.5102<br>59.32.4102<br>00.00.0000<br>59.34.5391<br>59.06.0103   | 3.3 nF<br>100 uF<br>100 uF<br>100 uF<br>10 nF<br>1 nF<br>290 pF<br>10 nF  | 10%, 63Y, PETP -20%, 25Y, EL -20%, 25Y, EL -20%, 25Y, EL 10%, 63Y, PETP 5%, 63Y, PETP 20%, 63Y, CER not used 5%, 63Y, CER 10%, 63Y, PETP                 |   | R<br>R<br>R<br>R<br>R<br>R<br>R      | 32<br>33<br>34<br>35<br>36<br>37<br>38<br>39<br>40       | 57.11.322<br>57.11.310<br>57.11.327<br>57.11.322<br>57.11.310<br>57.11.310<br>57.11.310<br>57.11.313              | 10 0<br>9 2.7 0<br>2 2.2 k0<br>9 2.2 0<br>2 1 k0<br>3 10 k0<br>3 20 k0<br>3 13 k0                         | hm 5' hm 1' hm 5' hm 1' hm 5' hm 1' hm 5' hm 1' hm 5'  |  |  |            |
|          | C31<br>C32<br>C33<br>C34<br>C35<br>C36<br>C37<br>C38<br>C39        | 59.06.0103<br>59.06.0332<br>59.06.0103<br>59.22.5101<br>59.06.0103<br>59.22.5401<br>59.22.5471<br>59.22.5471<br>59.22.5471                 | 10 nF<br>3.3 nF<br>10 nF<br>100 uF<br>10 nF<br>100 uF<br>470 uF<br>470 uF<br>470 uF                             | 10%, 63Y, PETP<br>10%, 63Y, PETP<br>10%, 63Y, PETP<br>-20%, 25Y, EL<br>-20%, 25Y, EL<br>-20%, 25Y, EL<br>-20%, 25Y, EL<br>-20%, 25Y, EL<br>-20%, 25Y, EL |   | R<br>R<br>R<br>R<br>R<br>R           | 42<br>43<br>44<br>45<br>46<br>47<br>48<br>49<br>50       | 57.11.310<br>57.11.347<br>57.11.310<br>57.11.347<br>57.11.310<br>57.11.322<br>57.11.315<br>57.11.310              | 3 47 k0<br>2 1 k0<br>0 47 0<br>3 10 k0<br>2 3.3 k0<br>2 2.2 k0<br>4 150 k0<br>3 10 k0                     | ha 54<br>ha 54<br>ha 54<br>ha 54<br>ha 54<br>ha 54<br>ha 54<br>ha 14   |  |  |            |
| 02       | C41<br>C41   | 59.22.5471<br>59.31.5685<br>59.02.0685   | 6.8 uF<br>6.8 uF  | 10%, 63V, PETP<br>10%, 63V, MPC  |   | R<br>R<br>R                          | 52<br>53<br>54<br>55                                     | 57.11.322<br>57.11.333<br>57.11.310<br>57.11.313  | 0 22 0<br>2 3.3 k0<br>3 10 k0<br>2 1.3 k0   | hm 54<br>hm 54<br>hm 14<br>hm 14   |  |  |            |
| 01<br>01 | D1 D2 D3 D3 D4 D4 D5 D6 D7 D8 D9 D10                               | 50.04.0138<br>50.04.0520<br>50.04.0522<br>50.04.1032<br>50.04.1103<br>50.04.0138<br>50.04.0127<br>50.04.0138<br>50.04.0127                 | UF 4004<br>BYV 73<br>BYV 72<br>Z 6.8 Y<br>Z 7.5 Y<br>UF 4004<br>BAT 85<br>Z 15 Y<br>BAT 85<br>UF 4004<br>BAT 85 | BYT 01-400, UES 1106  MBR 3045 PT BYW 99 P - 100  BYT 01-400, UES 1106 BAT 42  BAT 42 BYT 01-400, UES 1106 BAT 42  | GI, Tho, Un<br>Mot, Ph<br>Mot, Ph<br>Mot, Ph<br>ITT, Mot, Ph, If, SGS, Tho<br>ITT, Mot, Ph, If, SGS, Tho<br>GI, Tho, Un<br>Ph, SGS, Tho<br>GI, Tho, Un<br>Ph, SGS, Tho<br>GI, Tho, Un<br>Ph, SGS, Tho | R<br>R<br>R<br>R                     | 56<br>57<br>58<br>59<br>60<br>61<br>62<br>A1             | 57.11.322<br>57.11.322<br>57.11.322<br>57.11.312<br>57.11.312<br>57.56.205<br>58.05.150                           | 22 0<br>2 2.2 k0<br>2 2.2 k0<br>3 12 k0<br>2 2.2 k0<br>50 m0  | hm 5/hm 5/hm 5/hm 5/hm 5/hm 5/hm 3/hm 10/hm 10/h |  |  |            |
|          | D11<br>D12<br>D13  | 50.04.0138<br>50.04.0517<br>50.04.0517   | UF 4004<br>BYV 32<br>BYV 32   | BYT 01-400, UES 1106   | GI,Tho,Un<br>Mot,Ph<br>Mot,Ph   | T                                    | 2<br>PI  | 1.022.629.0<br>1.022.627.0<br>54.02.032   | 0   | Sw   | itching Transfo<br>itching Transfo<br>st Point           |  | St<br>St   |
|          | IC2<br>IC3<br>IC4<br>IC5   | 50.05.0283<br>50.10.0113<br>50.10.0116<br>50.07,0046<br>50.10.0113   | LM 393 N<br>1P3843 N<br>LM317HVT<br>CO4046BE<br>1P3843 N  | LM 393 P, LM 393 DP<br>UC 3843 M<br>HCF 4046 BE<br>UC 3843 M   | Sig,TI,NS,Tho<br>1PS,Un<br>Seagate,SG<br>SGS,RCA<br>IPS,Un  | (02)                                 | 03.10.91<br>1 - Comm                                     | System imp<br>Improved h<br>ector:<br>ontacts,  | igh freque  |  | viour.<br>26 852-3                                       |  |            |
|          | J1<br>J2   | 54.25.0010<br>54.02.0409   |   | see note 1<br>see note 2   |   | Note                                 | 2 - Conn   | •   | Studer Mr<br>Molex Mr.  | 03   | .02.0409<br>-06-1121                                     |  |            |
|          | L5<br>L6<br>L7   | 62.99.0111<br>62.99.0111<br>62.03.0010<br>1.022.636.00<br>62.03.0010<br>1.022.295.81<br>1.022.295.81<br>1.022.635.00                       | 3.9 uH<br>3.9 uH<br>48 uH<br>30 uH<br>48 uH<br>17 uH<br>17 uH   |  | Yo<br>Yo<br>Tokin<br>St<br>Tokin<br>St<br>St<br>St  | Note                                 | 3 - Conn   |   | Studer Nr. Studer Nr. Studer Nr. Studer Nr. Studer Nr. Holex Nr.  | . 54<br>. 54<br>. 54   | .02.0408<br>.02.0408<br>.06-2121<br>.02.0406<br>.06-8103 |  |            |
|          | P1<br>Q1   | 54.02.0408<br>50.03.0512   | BDW 93 B  | see note 3<br>BD 899 A   | Mot, SGS, Tho   |                                      |  | Ce=Ceramic<br>PETP=Polye  | El=Elect  | rolytic,<br>MPC=Mete   | MPETP=Metallize  | ed Polyesterfilm<br>onate film.                    | •          |
|          | Q2<br>Q3<br>Q4<br>Q5<br>Q6<br>Q7                                   | 50.03.0496<br>50.03.1609<br>50.03.0512<br>50.03.0340<br>50.03.1505<br>50.03.0496<br>50.03.1609   | BC 560<br>IRF 540<br>BDW 93 B<br>BC 337-25<br>VN 0808 M<br>BC 560<br>IRF 540                                    | BD 899 A<br>ZYN 0108 A   | Sie<br>R<br>Mot,SGS,Tho<br>1TT,MS,Ph,Sie<br>Fe,Six<br>Sie<br>IR   | MANUF                                | ACTURER:   | Semiconduc<br>Mot=Motoro<br>RCA=RCA Co<br>General, S  | tor, ITT=I<br>la, NS=Nat<br>rporation,<br>ie~Siemens<br>If=Telefu   | ntermeta<br>ional Ser<br>Ses=Ses<br>Sig=Sig<br>nken, Tho   | miconductors, Pl<br>cosem, SGS=SGS//<br>pnetics, Six=Si  | ional Rectifier,<br>h=Philips,<br>Ates, SG=Silicon |            |
|          | R2<br>R3   | 57.11.3101<br>57.11.3331<br>57.11.3101   | 100 Ohm<br>330 Ohm<br>100 Ohm   | 54:<br>54:<br>54:  |   |                                      |  | 1.820.832.0   |   |  |  | PZ 90/03/2100                                      |            |
|          | R4<br>R5<br>R6<br>R7<br>R8<br>R9                                   | 57.11.3302<br>57.11.3222<br>57.56.2050<br>57.19.0101<br>57.19.0101<br>57.92.7013<br>57.11.3332   | 3.0 kOhm<br>2.2 kOhm<br>50 mOhm<br>100 Ohm<br>100 Ohm<br>0.75 Ohm<br>3.3 kOhm                                   | 5%<br>5%<br>3%, 3M<br>5%, Fuse<br>5%, Fuse<br>PTC<br>5%  |   |                                      |  | 1.820.832.0<br>1.820.832.0  |   |  |  | PZ 90/08/0601<br>PZ 91/10/0302                     |            |

# STABILIZER 1.820.832.81

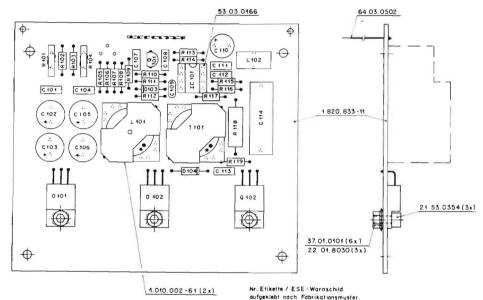
| POS   | REF.No   | DESCR <u>IP</u> T  | TON   | MANUFACTURER  | Ad POS                                 | REF.No   | . DESCRIPT  | TIONMAN   | JFACTU |
|---|--|--|---|---|--|--|---|---|--------|
| C1<br>C2<br>C3<br>C4                          | 1.820.833.00<br>59.22.6470<br>59.06.0103<br>59.22.3221<br>59.22.8220   | 47 uF<br>10 nF<br>220 uF<br>22 uF  | Stabilizer +/-26V<br>-20%, 40V, EL<br>10%, 63V, PETP<br>-20%, 10V, EL<br>-20%, 63V, EL                  | MANUFACTURER  | R14<br>R15<br>R16<br>R17<br>R18<br>R19 | 57.11.322<br>57.11.368<br>57.11.310<br>57.11.333<br>57.11.310<br>57.11.310 | 3 68 kOhm<br>1 100 Ohm<br>2 3.3 kOhm<br>3 10 kOhm<br>3 10 kOhm                | 14<br>14<br>14<br>54<br>54  |        |
| C6<br>C7<br>C8<br>C9                          | 59.22.6221<br>59.22.6221<br>59.22.3102<br>59.22.3102<br>59.02.0685<br>59.22.8220   | 220 uF<br>220 uF<br>1000 uF<br>1000 uF<br>6.8 uF<br>22 uF  | -20%, 40V, EL<br>-20%, 40V, EL<br>-20%, 10V, EL<br>-20%, 10V, EL<br>10%, 63V, MPC, /!\<br>-20%, 63V, EL |   | R20<br>R21<br>R22<br>R23<br>R24<br>R25 | 57.11.322<br>57.11.315<br>57.11.347<br>57.11.313<br>57.11.375<br>57.11.322 | 2 2.2 kOhm<br>4 150 kOhm<br>3 47 kOhm<br>2 1.3 kOhm<br>2 7.5 KOhm<br>0 22 Ohm | 54<br>54<br>14<br>14<br>14<br>54  |        |
| C11<br>C12<br>C13<br>C14<br>C15<br>C16        | 59.06.0474<br>59.06.0683<br>59.06.5102<br>59.06.5104<br>59.06.5102<br>00.00.0000   | 470 nF<br>68 nF<br>1 nF<br>100 nF<br>1 nF  | 104, 63V, PETP<br>104, 63V, PETP<br>54, 63V, PETP<br>54, 63V, PETP<br>54, 63V, PETP<br>not used         |   | R26<br>R27<br>R28<br>R29<br>R30        | 57.11.333<br>57.11.322<br>57.11.322<br>57.11.382<br>57.11.310              | 0 22 Ohm<br>0 22 Ohm<br>2 8.2 kOhm  | 54<br>54<br>54<br>54<br>54  |        |
| C17<br>C18<br>C19<br>C20                      | 59.32.4102<br>59.32.1681<br>59.06.0103<br>59.06.0103   | 1 nf<br>680 pf<br>10 nf<br>10 nf   | 20%, 63V, CER<br>10%, 400V, CER<br>10%, 63V, PETP<br>10%, 63V, PETP                                     |   | R31<br>R32<br>R33<br>R34<br>R35        | 57.11.347<br>57.11.322<br>57.11.310<br>57.11.327<br>57.11.322              | 2 2.2 kOhm<br>0 10 Ohm<br>9 2.7 Ohm<br>2 2.2 kOhm                             | 54<br>14<br>54<br>54  |        |
| C21<br>C22<br>C23<br>C24<br>C25<br>C26<br>C27 | 59.06.0332<br>59.22.5101<br>59.22.5101<br>59.22.5101<br>59.06.0103<br>59.06.5102<br>59.32.4102   | 3.3 nF<br>100 uF<br>100 uF<br>100 uF<br>10 nF<br>1 nF  | 104, 634, PETP<br>-204, 254, EL<br>-204, 254, EL<br>-204, 254, EL<br>104, 634, PETP<br>54, 634, PETP    |   | R36<br>R37<br>R38<br>R39<br>R40        | 57.11.322<br>57.11.310<br>57.11.310<br>57.11.320<br>57.11.313              | 2 1 kOhm<br>3 10 kOhm<br>3 20 kOhm<br>3 13 kOhm                               | 54<br>14<br>54<br>14<br>14  |        |
| C28<br>C29<br>C30                             | 00.00.0000<br>59.34.5391<br>59.06.0103   | 390 pF<br>10 nF  | 10%, 63V, PETP  |   | R42<br>R43<br>R44<br>R45               | 57.11.310<br>57.11.347<br>57.11.310<br>57.11.347<br>57.11.347              | 2 1 k0hm<br>3 47 k0hm<br>2 1 k0hm<br>0 47 0hm                                 | 54<br>54<br>54<br>54<br>54  |        |
| C32<br>C34<br>C35<br>C36<br>C37               | 59.06.0332<br>59.06.0103<br>59.22.5101<br>59.06.0103<br>59.22.5101   | 3.3 nF<br>10 nF<br>100 uF<br>10 nF<br>100 uF<br>470 uF   | 104, 63V, PETP<br>104, 63V, PETP<br>-204, 25V, EL<br>104, 63V, PETP<br>-204, 25V, EL                    |   | R47<br>R48<br>R49<br>R50               | 57.11.333<br>57.11.322<br>57.11.315<br>57.11.310                           | 2 3.3 kOhm<br>2 2.2 kOhm<br>4 150 kOhm<br>3 10 kOhm                           | 54<br>54<br>54<br>14  |        |
| C37<br>C38<br>C39<br>C40                      | 59.22.5471<br>59.22.5471<br>59.22.5471<br>59.22.5471<br>59.02.0685   | 470 uF<br>470 uF<br>470 uF<br>470 uF   | -204, 254, EL<br>-204, 254, EL<br>-204, 254, EL<br>-204, 254, EL<br>104, 634, MPC, /!\                  |   | R51<br>R52<br>R53<br>R54<br>R55<br>R56 | 57.11.322  | 0 22 0hm<br>2 3.3 k0hm<br>3 10 k0hm<br>2 1.3 k0hm<br>0 22 0hm                 | 14<br>54<br>54<br>14<br>15<br>54  |        |
| D1<br>D2<br>D3<br>D4<br>D5                    | 50.04.0138<br>50.04.0517<br>50.04.0522<br>50.04.1103<br>50.04.0138   | UF 4004<br>BYV 32<br>BYV 72<br>Z 7.5 V<br>UF 4004  | BYT 01-400, UES 1106<br>BYW 99 P - 100<br>BYT 01-400, UES 1106  | Mot,Ph<br>Mot,Ph<br>1TT,Mot,Ph,Tf,SGS,Tho                                 | R57<br>R58<br>R59<br>R60               | 57.11.322<br>57.11.322<br>57.11.322<br>57.11.312                           | 0 22 Ohm<br>2 2.2 kOhm<br>2 2.2 kOhm<br>3 12 kOhm                             | 54:<br>54:<br>54:<br>54:  |        |
| D6<br>D7<br>D8<br>D9<br>D10                   | 50.04.0127<br>50.04.1119<br>50.04.0127<br>50.04.0138<br>50.04.0127   | BAT 85<br>Z 15 V<br>BAT 85<br>UF 4004<br>BAT 85  | BAT 42<br>BAT 42<br>BYT 01-400, UES 1106<br>BAT 42  | Ph, SGS, Tho<br>ITT, Mot, Ph, Tf, SGS, Tho                                | R61<br>R62<br>RA1<br>RA2               | 57.11.322<br>57.56.205<br>58.05.150<br>58.05.150                           | 0 50 mOhm<br>1 500 Ohm  | 34, 3W<br>104, multi turn<br>104, multi turn  |        |
| D11<br>D12<br>D13                             | 50.04.0138<br>50.04.0517<br>50.04.0517   | UF 4004<br>BYV 32<br>BYV 32  | BYT 01-400, UES 1106  | GI.Tho.Un<br>Mot.Ph<br>Mot.Ph   | T2                                     | 1.022.629.0<br>1.022.627.0<br>54.02.032                                    | 0   | Switching Transformer<br>Switching Transformer<br>Test Point  |        |
| IC2<br>IC3<br>IC4<br>IC5                      | 50.05.0283<br>50.10.0113<br>50.10.0116<br>50.07.0046<br>50.10.0113   | LM 393 N<br>1P3843 N<br>LM317HVT<br>CD4046BE<br>1P3843 N   | LM 393 P, LM 393 DP<br>UC 3843 N<br>HCF 4046 BE<br>UC 3843 N  | Sig,TI,MS,Tho<br>IPS,Un<br>Seagate,SG<br>SGS,RCA<br>IPS,Un                | Note 1 - Con<br>10                     | nector:<br>contacts,   | AMP Nr.   | 826 852-3   |        |
| J1<br>J2<br>L1                                | 54.25.0010<br>54.02.0409<br>62.99.0111   | 3.9 uH   | see note 1<br>see note 2  | Vo  | Note 2 - Con<br>cas                    |  | Studer Nr.<br>Molex Nr.<br>Studer Nr.<br>Molex Nr.                            | 54.02.0409<br>03-06-1121<br>54.02.0407<br>02-06-7103  |        |
| L6<br>L7                                      | 62.99.0111<br>62.03.0010<br>1.022.636.00<br>62.03.0010<br>1.022.295.81<br>1.022.295.81<br>1.022.635.00                                   | 3.9 uH<br>48 uH<br>30 uH<br>48 uH<br>17 uH<br>17 uH<br>86 uH   |   | Vo<br>Tokin<br>St<br>Tokin<br>St<br>St<br>St                              | Note 3 - Con<br>cas                    |  | Studer Nr.<br>Molex Nr.<br>Studer Nr.<br>Molex Nr.                            | 54.02.0408<br>03-06-2121<br>54.02.0406<br>02-06-8103  |        |
| P1  | 54.02.0408   |  | see note 3  |   |  | Ce=Ceramic<br>PETP=Polye   | El=Electroly<br>sterfilm, MPC=  | vtic, MPETP-Metallized Polyesterfilm,<br>-Metallized Polycarbonate film.  |        |
| Q1<br>Q2<br>Q3<br>Q4<br>Q5<br>Q6<br>Q7        | 50.03.0512<br>50.03.0496<br>50.03.1609<br>50.03.0512<br>50.03.0340<br>50.03.1505<br>50.03.0496<br>50.03.1609                             | BDW 93 B<br>BC 560<br>IRF 540<br>8DW 93 B<br>BC 337-25<br>VN 0808 M<br>BC 560<br>IRF 540                       | BD 899 A<br>BD 899 A<br>ZYN 0108 A  | Mot,SGS,Tho<br>Sie<br>IR<br>Mot,SGS,Tho<br>1TT,MS,Ph,Sie<br>Fe,Six<br>Sie | MANUFACTURER                           | Semi conduct<br>Mot=Motoro<br>RCA=RCA Co<br>General, S<br>St=Studer,       | tor, ITT=Inter<br>la, MS=Nationa<br>rporation, Ses<br>ie=Siemens, Si          | Instruments, IPS-Integrated Power metall, IR-International Rectifier, al Semiconductors, Ph-Philips,Sescosem, SGS-SGS/Ates, SG-Silicon g-Signetics, Six-Siliconix, , Tho-Thomson, Ti-Texas Instruments, co. |        |
| Q8 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10             | 57.11.3101<br>57.11.3331<br>57.11.3302<br>57.11.3302<br>57.11.3222<br>57.56.2050<br>57.19.0101<br>57.19.0101<br>57.92.7013<br>57.11.3332 | 100 Ohm<br>330 Ohm<br>100 Ohm<br>3.0 kOhm<br>2.2 kOhm<br>50 mOhm<br>100 Ohm<br>100 Ohm<br>0.75 Ohm<br>3.3 kOhm | 54<br>54<br>54<br>54<br>34, 34<br>55, Fuse<br>57, Fuse<br>PTC<br>54                                     | IR  | END.                                   | 1.820.832.8  | 1 STABILIZER  | GP 95/03/22 <b>00</b>   |        |
| R11<br>R12<br>R13                             | 57.11.3561<br>57.11.3152<br>57.11.3103   | 560 Ohm<br>1.5 kOhm<br>10 kOhm   | 14<br>14<br>54  |   |  |  |   |   |        |







#### STABILIZER + / -26V / 1A 1.820.833.00



🕶 🛮 gelber Punkt

| STUDER<br>REGENSOORF<br>ZÜRICK | STABILIZER +/- 26 V<br>ESE | 1.820.833-00 |          |     |      |     | 0    |
|--------------------------------|----------------------------|--------------|----------|-----|------|-----|------|
|                                |                            | Kq           | opie für |     |      |     |      |
|                                |                            | 2            | Detum    | Get | Gepr | Ges | Inde |
|                                |                            | 9080         | 21.3.90  | A % | PZ   | M   | 20   |
|                                |                            | 2            |          |     | -    |     | 0    |
|                                |                            | nderu        |          |     |      |     | 3    |
|                                |                            | 2            |          |     |      |     | 3    |

| 0102 \$0.04.01517 \$YY\$2 No.7.  0103 \$0.04.0127 \$XR\$5 \$8.1 42 Ph.S.S.; In Co. 100 \$0.04.0138 UF 4004 \$YT\$ 01-400, UE\$ 1106 \$GI, The, UE\$ 1.001 \$0.04.0138 UF 4004 \$YT\$ 01-400, UE\$ 1106 \$GI, The, UE\$ 1107 \$1.022.437.00 \$403 W\$  1107 \$0.22.437.00 \$403 W\$  1107 \$0.03.0496 \$8.560 \$5   | POS      | REF.No       | DESCRIP  | rion                  | MANUFACTURE |
|--|----------|--------------|----------|-----------------------|-------------|
| C. 102 59.22.6221 220 uf -204, 40V, EL C. 103 59.02.0103 10 nF 104, 63V, PETP C. 106 59.22.6221 220 uf -204, 40V, EL C. 106 59.22.6221 220 uf -204, 40V, EL C. 106 59.22.6221 220 uf -204, 40V, EL C. 107 59.02.1021 10 nF 104, 63V, PETP C. 108 59.02.102 10 nF 104, 63V, PETP C. 109 59.02.102 10 nF 104, 63V, PETP C. 110 59.02.103 10 nF 104, 63V, PETP C. 111 59.06.0103 10 nF 104, 63V, PETP C. 112 59.06.0103 10 nF 104, 63V, PETP C. 113 59.06.0312 13 nF 104, 63V, PETP C. 114 59.15.655 6.8 uf 104, 63V, PETP C. 115 59.06.0312 13 nF 104, 63V, PETP C. 116 59.06.0517 8Y 32 D. 102 50.04.0517 8Y 32 D. 102 50.04.0517 8Y 32 D. 103 50.04.0131 19843 N UC 3843 N D. 104 50.04.0131 193843 N UC 3843 N D. 104 50.04.0131 193843 N UC 3843 N D. 104 50.04.0138 UF 104, 63V, PETP C. 110 50.10.0113 193843 N UC 3843 N D. 104 57.02.006 8 UF 104, 63V, PETP C. 110 50.00.0169 187 540 D. 104 57.01.0069 187 540 D. 105 50.01.0130 10 nF 104, 63V, PETP D. 107 57.01.007 10 nF 104, 63V, PETP D. 108 57.01.007 10 nF 104, 63V, PETP D. 109 57.01.007 10 nF 104, 63V, PETP D. 100 57.01.007 10 nF 104, 63V, PETP D. 101 50.01.0113 193843 N UC 3843 N D. 104 57.01.007 10 nF 104, 63V, PETP D. 105 50.01.0113 193843 N UC 3843 N D. 104 57.01.012 10 nF 104, 63V, PETP D. 105 50.01.0113 193843 N UC 3843 N D. 106 57.01.012 10 nF 104, 63V, PETP D. 107 57.01.012 10 nF 104, 63V, PETP D. 108 58.00 10 nF 104, 63V, PETP D. 108 58.00 10 nF 104, 6   |          |              |          |                       |             |
| C. 102 59.22.6221 220 uf -204, 40V, EL C. 103 59.02.0103 10 nF 104, 63V, PETP C. 106 59.22.6221 220 uf -204, 40V, EL C. 106 59.22.6221 220 uf -204, 40V, EL C. 106 59.22.6221 220 uf -204, 40V, EL C. 107 59.02.1021 10 nF 104, 63V, PETP C. 108 59.02.102 10 nF 104, 63V, PETP C. 109 59.02.102 10 nF 104, 63V, PETP C. 110 59.02.103 10 nF 104, 63V, PETP C. 111 59.06.0103 10 nF 104, 63V, PETP C. 112 59.06.0103 10 nF 104, 63V, PETP C. 113 59.06.0312 13 nF 104, 63V, PETP C. 114 59.15.655 6.8 uf 104, 63V, PETP C. 115 59.06.0312 13 nF 104, 63V, PETP C. 116 59.06.0517 8Y 32 D. 102 50.04.0517 8Y 32 D. 102 50.04.0517 8Y 32 D. 103 50.04.0131 19843 N UC 3843 N D. 104 50.04.0131 193843 N UC 3843 N D. 104 50.04.0131 193843 N UC 3843 N D. 104 50.04.0138 UF 104, 63V, PETP C. 110 50.10.0113 193843 N UC 3843 N D. 104 57.02.006 8 UF 104, 63V, PETP C. 110 50.00.0169 187 540 D. 104 57.01.0069 187 540 D. 105 50.01.0130 10 nF 104, 63V, PETP D. 107 57.01.007 10 nF 104, 63V, PETP D. 108 57.01.007 10 nF 104, 63V, PETP D. 109 57.01.007 10 nF 104, 63V, PETP D. 100 57.01.007 10 nF 104, 63V, PETP D. 101 50.01.0113 193843 N UC 3843 N D. 104 57.01.007 10 nF 104, 63V, PETP D. 105 50.01.0113 193843 N UC 3843 N D. 104 57.01.012 10 nF 104, 63V, PETP D. 105 50.01.0113 193843 N UC 3843 N D. 106 57.01.012 10 nF 104, 63V, PETP D. 107 57.01.012 10 nF 104, 63V, PETP D. 108 58.00 10 nF 104, 63V, PETP D. 108 58.00 10 nF 104, 6   | r 101    | 59 06 0103   | 10 oF    | 10% 63V PETP          |             |
| C. 103   |          |              |          |                       |             |
| C. 1104 \$9.06.0103 10 af 104, 63V, PETP C. 105 \$9.22.6221 220 uf -20F, 40V, £L C. 106 \$9.22.6221 220 uf -20F, 40V, £L C. 107 \$9.22.6221 220 uf -20F, 40V, £L C. 108 \$9.06.0102 1 af 104, 63V, PETP C. 108 \$9.06.0102 1 af 108, 51V, PETP C. 108 \$9.06.0102 1 af 108, 51V, PETP C. 109 \$9.22.5101 100 uf -20F, 25V, £L C. 111 \$9.22.5101 100 uf -20F, 25V, £L C. 111 \$9.22.5101 100 uf -20F, 25V, £L C. 111 \$9.06.0103 1 af 10A, 63V, PETP C. 112 \$9.06.0103 1 af 10A, 63V, PETP C. 113 \$9.06.0312 1 al af 10A, 63V, PETP C. 114 \$9.31.5685 6.8 uf 10A, 63V, PETP C. 115 \$9.06.0312 1 ar 10A, 63V, PETP C. 116 \$9.06.0312 1 ar 10A, 63V, PETP C. 117 \$9.06.0312 1 ar 10A, 63V, PETP C. 118 \$9.31.5685 6.8 uf 10A, 63V, PETP C. 110 \$0.04.0131 1 ar 10A, 63V, PETP C. 110 \$0.04.0131 |          |              |          |                       |             |
| C. 106 59.22,6221 220 uf -204, 40V, EL C. 107 59.06.0102 1 nf 109, 63V, PFIP C. 108 59.06.0102 1 nf 109, 63V, PFIP C. 109 59.12,6261 680 pf 34, 63V, CER C. 110 59.06.0104 100 uf -20V, 25V, EL C. 111 59.06.0104 100 uf -20V, 25V, EL C. 112 59.06.0103 1 ne f 104, 63V, PFIP C. 113 59.06.0103 1 ne f 104, 63V, PFIP C. 114 59.02,0685 6.8 uf 10V, 63V, PFIP D. 114 59.02,0685 6.8 uf 10V, 63V, PFIP D. 110 50.04.0517 8YV 32 D. 110 50.05.0518 8VV 32 D. 110 50.0518 8VV 3   |          |              |          |                       |             |
| C. 106 59.22.6221 220 uf -204, 40V; EL C. 107 59.06.1012 1 nf 104, 63V, PETP C. 108 59.06.0102 1 nf 104, 63V, PETP C. 108 59.06.0102 1 nf 109, 63V, PETP C. 109 59.06.0102 1 nf 109, 63V, PETP C. 110 59.22.5101 100 uf -200, 25V; EL C. 111 59.06.0103 10 nf 104, 63V, PETP C. 112 59.06.0103 10 nf 104, 63V, PETP C. 113 59.06.0103 10 nf 104, 63V, PETP C. 114 59.31.5645 6.8 uf 104, 63V, PETP C. 114 59.31.5645 6.8 uf 104, 63V, PETP C. 115 50.00.0103 10 nf 104, 63V, PETP C. 116 50.00.017 117 V32 No. 100 No.   |          |              |          |                       |             |
| C. 107 59.06.0102 1 nf 104. 63V, PFTP C. 108 59.06.0102 1 nf 104. 63V, PFTP C. 109 59.32.2651 680 pf 54. 63V, CER C. 110 59.02.2510 1 nf 104. 63V, PFTP C. 110 59.02.0104 100 nf 104. 63V, PFTP C. 111 59.06.0104 100 nf 104. 63V, PFTP C. 112 59.06.1013 1 ne F 104. 63V, PFTP C. 113 59.06.1031 1 ne F 104. 63V, PFTP C. 114 59.02.0685 6.8 uf 104. 63V, PFTP 101 C. 114 59.02.0685 6.8 uf 104. 63V, MPC  0. 101 50.04.0517 8YY 32 P6TP 0. 102 50.04.0517 8YY 32 P6TP 0. 103 50.04.0517 8YY 32 P6TP 0. 104 59.02.0685 6.8 uf 104. 63V, MPC  0. 101 50.04.0517 8YY 32 P6TP 0. 103 50.04.0517 8YY 32 P6TP 0. 104 50.04.0518 18Y 32 P7.05 0. 104 50.04.0518 18Y 32 P7.05 0. 105 50.04.0517 8YY 32 P7.05 0. 107 50.04.0517 8YY 32 P7.05 0. 108 50.04.0517 8YY 32 P7.05 0. 108 50.04.0517 8YY 32 P7.05 0. 109 50.04.0518 18Y 32 P7.05 0. 101 50.04.0518 18Y 32 P7.05 0. 102 50.04.0517 8YY 32 P7.05 0. 103 50.04.0518 18Y 32 P7.05 0. 104 57.04.050 8u 400 4 8Y 01-400, UES 1106 0. 101 50.03.0496 8C 560 0. 102 50.03.0496 8C 560 0. 103 50.04.0518 18Y 54 0. 103 57.92.7015 0.21.05 PFC 0. 104 57.92.7015 0.21.05 PFC 0. 105 57.11.3520 2.05 by PFC 0. 106 57.11.3520 2.05 by PFC 0. 106 57.11.3203 2.05 by PFC 0. 107 57.11.3520 3.05 by PFC 0. 108 57.11.3520 5.6 bobs 54 0. 107 57.11.3520 3.1 bobs 54 0. 107 57.11.3520 5.1 bobs 54 0. 107 57.11.3520 5.1 bobs 54 0. 111 57   |          |              |          |                       |             |
| C108 59.06.0102 1 nf 104, 63V, PFTP C109 59.22.5611 100 uF 209, 25V, EL C110 59.22.5101 100 uF 209, 25V, EL C112 59.06.0103 10 nF 104, 63V, PFTP C113 59.06.0303 10 nF 104, 63V, PFTP C114 59.01.05855 6.8 uF 104, 63V, PFTP C114 59.31.5685 6.8 uF 104, 63V, PFTP C115 50.00.0312 18VY 32 C102 50.04.0517 8VY 32 C103 50.04.0517 8VY 32 C103 50.04.0518 UF 4004 8VY 101-400, UES 1106 GI.Tho.U C101 50.04.0518 UF 4004 8VY 101-400, UES 1106 GI.Tho.U C101 50.04.0519 UF 4004 SVY 101-400, UES 1106 GI.Tho.U C101 50.01.0013 UF 4004 SVY 101-400, UES 1106 GI.Tho.U C101 50.01.0016 80 uH C101 57.92.7015 0.21 0hm PTC R102 50.01.1609 IRF 540 R103 57.11.3562 5.8 t0hm 54 R103 57.11.3562 5.8 t0hm 54 R104 57.11.2012 20 0hm 114 R105 57.11.3120 20 0hm 114 R106 57.11.3120 20 0hm 114 R107 57.11.3120 20 0hm 114 R107 57.11.3120 20 0hm 54 R  |          |              |          |                       |             |
| C. 1109 59.32.2681 6800 pf 59.4, 63V, CER C. 110 59.06.0104 100 uf 7-20V, 25V, EL  C. 111 59.06.0104 100 uf 100, 63V, PETP C. 112 59.06.0103 10 uf 100, 63V, PETP C. 112 59.06.0103 11 uf 100, 63V, PETP C. 113 59.06.0332 31 uf 10V, 63V, PETP C. 114 59.11.5685 6.8 uf 10V, 63V, PETP C. 114 59.11.5685 6.8 uf 10V, 63V, PETP C. 114 59.11.5685 6.8 uf 10V, 63V, PETP C. 116 50.04.0517 8YV 32 Roc, 25V, 84V C. 117 50.04.0517 8YV 32 Roc, 25V, 84V C. 110 50.04.0517 8VV 32 Roc, 25V, 84V C. 110 50.04.0517 8VV 32 Roc, 25V, 84V C. 110 50.05.0510 8V 4V C.  |          |              |          |                       |             |
| C  | C108     | 59.06.0102   | 1 nf     |                       |             |
| C  | C109     | 59.32.2681   | 680 pF   | 54. 63V, CER          |             |
| C. 112   | C110     | 59.22.5101   | 100 uF   |                       |             |
| C. 112   | C111     | 59.06.0104   | 100 mF   | 104. 63Y, PETP        |             |
| C. 113 \$9.06.0332 31.3 nf 104, 63V, PETP C. 114 \$9.02.0685 6.8 uf 104, 63V, PETP D1 C. 114 \$9.02.0685 6.8 uf 104, 63V, MPC D1 C. 114 \$9.02.0685 6.8 uf 104, 63V, MPC D1 C. 114 \$9.02.0685 6.8 uf 104, 63V, MPC D1 C. 114 \$9.02.0685 6.8 uf 104, 63V, MPC D1 C. 105 \$0.04.0517 8PY 32 BY 32  |          |              | 10 eF    |                       |             |
| C114 59.31.5685 6.8 uF 104, 63Y, PFTP 10114 59.31.5685 6.8 uF 104, 63Y, PFTP 10114 59.31.5685 6.8 uF 104, 63Y, PFTP 10101 50.04.0517 8YY 32 0102 50.04.0517 8YY 32 0102 50.04.0517 8YY 32 0102 50.04.0127 8YY 32 0103 50.04.0137 07 4004 10101 50.04.0138 UF 4004 8YT 01-400, UES 1106 GI Tho.U 10101 10.022.637.00 403 uH 10101 10.02.637.00 403 uH 10102 62.00.0010 68 uH 10101 50.00.0106 68 UH 10101 50.00.0106 68 UH 10101 50.00.0106 68 UH 10101 57.92.7015 0.21 0Nm PFC 10101 57.92.7015 0.21 0Nm PFC 10102 50.03.1609 1RF 540 10101 57.92.7015 0.21 0Nm PFC 10101 57.92.7015 0.21 0Nm PFC 10102 50.03.1609 1RF 540 10101 57.11.3562 5.8 Ubhm 54 10103 57.11.3562 5.8 Ubhm 54 10103 57.11.3562 5.8 Ubhm 54 10104 57.11.3122 1.2 Ubhm 11 10107 57.11.3122 1.2 Ubhm 11 10107 57.11.3122 1.2 Ubhm 11 10107 57.11.3122 1.2 Ubhm 14 10107 57.11.3122 1.2 Ubhm 54 10107 57.11.3122 1.3 Ubhm 54 10107 57.11.3122 1.3 Ubhm 54 10101 57.11.3122 2.2 Ubhm 54 10101 57.11.3122 3.3 Ubhm 54 10101 57.11.3122 3.3 Ubhm 54 10111 57.11.3123 3.3 Ubhm 54 10111 57.11.3123 2.3 Ubhm 54 10111 57.11.3123 2.3 Ubhm 54 10112 57.11.3132 3.3 Ubhm 54 10113 57.11.3132 3.3 Ubhm 54 10113 57.11.3132 3.3 Ubhm 54 10114 57.11.3162 5.8 Ubhm 54 10115 57.11.3132 3.3 Ubhm 54 10115 57.11.3132 3.3 Ubhm 54 10116 57.11.3132 3.3 Ubhm 54 10117 57.11.3122 3.3 Ubhm 34 10118 57.51.5050 3.0 ubhm 34 10118 57.55.5050 3.0 ubhm 34 10   |          |              |          |                       |             |
| 10   | C 114    |              |          |                       |             |
| 0101 50.04.0517 8YY 32 0102 50.04.0517 8YY 32 0103 50.04.0127 8XY 32 0103 50.04.0127 8XY 32 0104 50.04.0127 8X 32 0104 50.04.0138 UF 4004 8YY 01-400, UES 1106 0101 50.10.0113 193843 N UC 3843 N  1P5,U  1101 1.022.437.00 403 UK 1102 62.03.0010 48 UK 0101 50.03.0496 8C 560 0102 50.03.1609 1RF 540 0101 57.92.7015 0.21 0hm PTC 0102 57.11.3562 5.6 Uhm 54 0104 57.92.7015 0.21 0hm PTC 0104 57.92.7015 0.21 0hm PTC 0105 105.013.009 1RF 540 0106 57.11.3202 22 22 Uhm 1k 0104 57.92.7015 0.21 0hm 1k 0105 10.013.010 10 Uhm 54 0106 57.11.3103 10 Uhm 54 0107 10.010 10 Uhm 54 0108 10.010 10.010 10.010 54 0108 10.010 10.010 10.010 10.010 10.010 10.010 10.010 10.   | 21 6 114 |              |          |                       |             |
| 0102 50.04.0127 BYY 32 No.5; 0 102 50.04.0127 BYY 32 No.5; 0 103 50.04.0127 BXT 35 BAT 42 Ph.S.S., 17 Ph.  | JI C114  | 59.02.0085   | 0.8 Mr   | 104, 631, AC          |             |
| D102 SO.04.0127 BYY 32 BY 3  | 0101     | 50.04.0517   | 8YY 32   |                       | Mot, P      |
| 0103 50.04.0132 BAT 85 BAT 42 PR.505.1 BY 0 104 60 UCS 1106 GI. Tho.U IC 101 50.10.0113 IP3843 N UC 3843 N IP5.U IC 101 1.022.637.00 40.3 w IV 102 62.03.0010 68 w IV 102 62.03.0010 69 IR 540 IV 102 62.03.0010 69 IV  |          |              |          |                       | Not.P       |
| 0104 50.04.0138 UF 4004 8Y1 01-400, UES 1106 GI. Tho.U  IC101 50.10.0113 IP3843 N UC 3843 N IP5.U  L101 50.10.01013 IP3843 N UC 3843 N IP5.U  L102 62.03.0010 68 uH  G101 50.03.0496 8C 5560 G102 50.03.1609 IR 540  R101 57.92.7015 0.21.0 Num PTC  R102 57.11.3562 5.6 tOhu 54  R104 57.92.7015 0.21 Ohu PTC  R105 57.11.3503 20 tOhu PTC  R106 57.11.3203 20 tOhu IN  R107 57.11.322 1.2 tOhu IN  R108 57.11.3101 ID tOhu S4  R109 57.11.3210 ID tOhu S4  R109 57.11.322 2.2 tOhu  R109 57.11.322 2.2 tOhu  R100 57.11.322 3.3 tOhu 54  R110 57.11.322 2.2 tOhu 54  R110 57.11.322 2.2 tOhu 54  R110 57.11.322 3.3 tOhu 54  R111 57.11.3582 6.8 tOhu 54  R112 57.11.3332 3.3 tOhu 54  R113 57.11.3312 3.3 tOhu 54  R114 57.11.3582 6.8 tOhu 14  R115 57.11.3312 3.3 tOhu 54  R116 57.11.3312 3.3 tOhu 54  R116 57.11.3312 3.3 tOhu 54  R117 57.11.3323 3.3 tOhu 54  R118 57.11.3312 3.3 tOhu 54  R118 57.11.3312 3.3 tOhu 54  R119 57.11.3312 3.3 tOhu 54  |          |              |          | RAT 42                |             |
| C.   101   50   10   101   1   |          |              |          |                       |             |
| L. 101 1.022.637.00 403 uH 55 L. 102 62.03.001 68 uH 7oki  0. 101 50.03.0496 8C 560 51  R. 101 57.92.7015 0.21 0hm PTC  R. 102 57.11.3562 5.6 tOhm 54  R. 103 57.11.3562 5.6 tOhm 18  R. 104 57.11.3562 5.6 tOhm 18  R. 105 57.11.3102 122 0.2 tOhm 18  R. 106 57.11.3122 1.2 tOhm 18  R. 106 57.11.3102 10 tOhm 18  R. 106 57.11.3102 10 tOhm 18  R. 106 57.11.3103 10 tOhm 54  R. 106 57.11.3103 10 tOhm 54  R. 106 57.11.3103 10 tOhm 54  R. 107 57.11.3103 10 tOhm 54  R. 108 57.11.3103 10 tOhm 54  R. 110 57.11.322 2.2 tOhm 54  R. 111 57.11.3473 47 tOhm 54  R. 111 57.11.3473 47 tOhm 54  R. 111 57.11.3482 6.8 tOhm 18  R. 111 57.11.3582 7.3 tOhm 54  R. 111 57.11.3582 7.3 tOhm 54  R. 111 57.11.3582 7.3 tOhm 54  R. 111 57.11.3582 7.3 tOhm 18  R. 111 57.55.2050 50 tOhm 18  R. 111 57.55.2050 50 tOhm 34  R. 111 57.55.2050 50 tOhm 54  R. 111 57.11.3100 10 Ohm 54  | V104     | 50.04.0138   | Ur 4004  | \$11 01-400, 0ES 1106 |             |
| Total   Control   Contro   | IC101    | 50.10.0113   | 1P3843 N | UC 3843 N             | IPS,U       |
| Q101   | L101     | 1.022.637.00 | 403 uH   |                       | S           |
| Q102 50.03.1669 IRF 540 II  R101 57.92.7015 0.2.1 0hm PTC R102 57.11.3562 5.8 t0hm 54 R103 57.11.3565 5.8 t0hm 54 R103 57.11.3562 5.8 t0hm 18 R106 57.11.3203 2.0 t0hm 18 R106 57.11.31203 2.0 t0hm 18 R107 57.11.3120 1.2 t0hm 18 R108 57.11.3103 10 t0hm 54 R109 57.11.3122 2.2 t0hm 54 R109 57.11.3120 3.0 t0hm 54 R109 57.11.3103 10 t0hm 54 R110 57.11.322 2.2 t0hm 54 R111 57.11.340 0.0 t0hm 54 R112 57.11.340 0.0 t0hm 54 R113 57.11.350 0.0 t0hm 54 R114 57.11.362 6.8 t0hm 18 R115 57.11.332 3.3 t0hm 54 R116 57.11.332 3.3 t0hm 54 R117 57.11.350 0.0 54 R118 57.11.350 0.0 54 R118 57.11.350 0.0 54 R118 57.11.332 3.3 t0hm 54 R118 57.11.350 0.0 54 R118 57.11.3130 1.3 t0hm 34 R118 57.55.2050 50 m0hm 34 R119 00.00.00000   | 1102     | 62.03.0010   | 68 uH    |                       | Toki        |
| Q102 50.03.1669 IRF 540 II  R101 57.92.7015 0.2.1 0hm PTC R102 57.11.3562 5.8 t0hm 54 R103 57.11.3565 5.8 t0hm 54 R103 57.11.3562 5.8 t0hm 18 R106 57.11.3203 2.0 t0hm 18 R106 57.11.31203 2.0 t0hm 18 R107 57.11.3120 1.2 t0hm 18 R108 57.11.3103 10 t0hm 54 R109 57.11.3122 2.2 t0hm 54 R109 57.11.3120 3.0 t0hm 54 R109 57.11.3103 10 t0hm 54 R110 57.11.322 2.2 t0hm 54 R111 57.11.340 0.0 t0hm 54 R112 57.11.340 0.0 t0hm 54 R113 57.11.350 0.0 t0hm 54 R114 57.11.362 6.8 t0hm 18 R115 57.11.332 3.3 t0hm 54 R116 57.11.332 3.3 t0hm 54 R117 57.11.350 0.0 54 R118 57.11.350 0.0 54 R118 57.11.350 0.0 54 R118 57.11.332 3.3 t0hm 54 R118 57.11.350 0.0 54 R118 57.11.3130 1.3 t0hm 34 R118 57.55.2050 50 m0hm 34 R119 00.00.00000   |          |              |          |                       |             |
| Q102 \$5.03.1669 IRF 540  R101 \$7.92.7015 0.21 0hm PTC R102 \$7.11.3562 5.6 t0hm \$4 R103 \$7.11.3562 5.6 t0hm PTC R104 \$7.92.7015 0.21 0hm PTC R106 \$7.11.3203 0.21 0hm PTC R106 \$7.11.3203 0.20 t0hm Ik R107 \$7.11.3203 1.20 t0hm Ik R107 \$7.11.3120 1.2 t0hm Ik R108 \$7.11.3103 10 t0hm \$4 R109 \$7.11.3103 10 t0hm \$5 R110 \$7.11.3122 2.2 t0hm \$5 R110 \$7.11.3122 2.2 t0hm \$5 R111 \$7.11.3124 1.50 t0hm \$5 R112 \$7.11.3123 1.50 t0hm \$5 R113 \$7.11.3562 6.8 t0hm Ik R114 \$7.11.3662 6.8 t0hm Ik R115 \$7.11.3132 3.3 t0hm \$5 R116 \$7.11.3123 2.3 t0hm \$5 R117 \$7.11.3124 1.3 t0hm Ik R118 \$7.71.3322 3.3 t0hm \$5 R119 \$7.71.3132 3.3 t0hm \$3 R119 \$7.75.2050 \$50 m0hm \$3 R119 \$7.75.2050 \$50 m0hm \$3 R119 \$7.75.1.3100 10 0hm \$3 R119 \$7.75.1.3100 10 0hm \$4 R101 00.00.00000   | 0101     | 50.03.0496   | BC 560   |                       | Si          |
| R. 102 57.11.3562 5.6 tOba 54 R. 103 57.92.7015 0.21 Oba 54 R. 104 57.92.7015 0.21 Oba FC R. 105 57.11.3520 7.2 tOba 14 R. 106 57.11.3203 20 tOba 14 R. 107 57.11.3203 1.2 tOba 14 R. 108 57.11.3101 10 tOba 54 R. 109 57.11.3101 10 tOba 54 R. 109 57.11.3101 10 tOba 54 R. 110 57.11.3222 2.2 tOba 54 R. 111 57.11.3322 3.3 tOba 54 R. 111 57.11.3502 6.8 tOba 54 R. 111 57.11.3502 6.8 tOba 14 R. 111 57.11.3502 6.8 tOba 34 R. 111 57.11.3312 3.3 tOba 34 R. 111 57.11.3304 3.3 tOba 34 R. 111 57.52.2050 30 acoba 34 R. 111 57.57.52.2050 30 acoba 34 R. 111 57.57.13.310 10 Oba 34 R. 111 00.000.00000   |          | 50.03.1609   | IRF 540  |                       | 1           |
| R. 102 57.11.3562 5.6 tOba 54 R. 103 57.92.7015 0.21 Oba 54 R. 104 57.92.7015 0.21 Oba FC R. 105 57.11.3520 7.2 tOba 14 R. 106 57.11.3203 20 tOba 14 R. 107 57.11.3203 1.2 tOba 14 R. 108 57.11.3101 10 tOba 54 R. 109 57.11.3101 10 tOba 54 R. 109 57.11.3101 10 tOba 54 R. 110 57.11.3222 2.2 tOba 54 R. 111 57.11.3322 3.3 tOba 54 R. 111 57.11.3502 6.8 tOba 54 R. 111 57.11.3502 6.8 tOba 14 R. 111 57.11.3502 6.8 tOba 34 R. 111 57.11.3312 3.3 tOba 34 R. 111 57.11.3304 3.3 tOba 34 R. 111 57.52.2050 30 acoba 34 R. 111 57.57.52.2050 30 acoba 34 R. 111 57.57.13.310 10 Oba 34 R. 111 00.000.00000   | R 101    | 57.92.7015   | 0.21 Ohm | PTC                   |             |
| R. 103 57.11.3562 5.6 tObas 54 R. 104 57.92.7015 0.21 Obas PTC R. 105 57.11.3222 2.2 tObas 14 R. 106 57.11.3223 2.2 tObas 14 R. 107 57.11.3122 1.2 tObas 14 R. 108 57.11.3103 10 tObas 54 R. 110 57.11.3103 10 tObas 54 R. 110 57.11.3103 10 tObas 54 R. 111 57.11.3232 3.3 tObas 54 R. 111 57.11.3232 3.3 tObas 54 R. 112 57.11.3232 3.3 tObas 54 R. 113 57.11.3232 3.3 tObas 54 R. 114 57.11.3124 6.5 tObas 54 R. 115 57.11.322 7.3 tObas 54 R. 116 57.11.3123 7.3 tObas 54 R. 117 57.11.3132 7.3 tObas 54 R. 118 57.11.3132 7.3 tObas 54 R. 119 57.11.3132 7.3 tObas 54 R. 111 57.11.3100 10 Obas 54 R. 111 57.71.3100 10 Obas 54   |          |              |          |                       |             |
| R. 104 57.92.7015 0.21 Obas PTC R. 105 57.11.3222 2.2 E0bas 14 R. 106 57.11.3203 20 E0bas 14 R. 107 57.11.3122 1.2 E0bas 14 R. 108 57.11.3103 10 E0bas 54 R. 109 57.11.3103 10 E0bas 54 R. 109 57.11.3103 10 E0bas 54 R. 110 57.11.3222 2.2 E0bas 54 R. 111 57.11.3423 47 E0bas 54 R. 111 57.11.3423 47 E0bas 54 R. 111 57.11.345 6.8 E0bas 54 R. 111 57.11.345 6.8 E0bas 14 R. 115 57.11.345 2.3 E0bas 14 R. 116 57.11.332 3.3 E0bas 14 R. 117 57.11.3120 3.3 E0bas 14 R. 118 57.52.205 30 E0bas 34 R. 119 57.52.205 30 E0bas 34 R. 119 57.52.205 30 E0bas 34 R. 119 57.57.13.310 10 Obas 34 R. 119 57.57.13.310 10 Obas 34 R. 119 57.57.13.310 10 Obas 34  |          |              |          |                       |             |
| R 105 57.11.3222 2.2 tOhm 1k R 106 75.11.3203 20 tOhm 1k R 107 57.11.3102 1.2 tOhm 1k R 108 75.11.3103 10 tOhm 54 R 109 57.11.3103 10 tOhm 54 R 110 57.11.322 2.2 tOhm 54 R 111 57.11.323 2.3 tOhm 54 R 112 57.11.323 2.3 tOhm 54 R 113 57.11.322 3.3 tOhm 54 R 114 57.11.3124 6.5 tOhm 54 R 115 57.11.322 2.3 tOhm 54 R 115 57.11.322 2.3 tOhm 54 R 116 57.11.312 2.3 tOhm 54 R 117 57.11.3132 1.3 tOhm 54 R 118 57.11.312 1.3 tOhm 54 R 118 57.11.312 1.3 tOhm 54 R 118 57.11.312 1.3 tOhm 54 R 118 57.11.3120 50 mOhm 34 R 118 57.5.2.505 50 mOhm 34 R 118 57.5.2.505 50 mOhm 54 R 118 57.5.2.505 50 mOhm 54 R 119 57.11.3100 10 Ohm 54 R 119 57.11.3100 10 Ohm 54  |          |              |          |                       |             |
| R106 57.11.3203 20 tOhm 14 R107 57.11.3122 1.2 tOhm 14 R108 57.11.3103 10 tOhm 54 R109 57.11.3103 10 tOhm 54 R110 57.11.3222 2.2 tOhm 54 R110 57.11.3222 2.2 tOhm 54 R112 57.11.3332 3.3 tOhm 54 R112 57.11.3332 3.3 tOhm 54 R113 57.11.3154 150 tOhm 54 R114 57.11.3562 6.8 tOhm 14 R115 57.11.3322 3.3 tOhm 54 R116 57.11.3322 3.3 tOhm 54 R117 57.11.3120 1.3 tOhm 18 R118 57.52.050 50 mOhm 34 R119 57.52.050 50 mOhm 34 RA101 00.00.00000   |          |              |          |                       |             |
| R. 107 57.11.3102 1.2 tOhm 14 R. 108 57.11.3103 10 tOhm 54 R. 1109 57.11.3103 10 tOhm 54 R. 1109 57.11.3120 2.2 tOhm 54 R. 1110 57.11.3247 47 tOhm 54 R. 1112 57.11.3322 3.3 tOhm 54 R. 112 57.11.3322 3.3 tOhm 54 R. 113 57.11.3523 2.3 tOhm 54 R. 114 57.11.352 3.3 tOhm 54 R. 114 57.11.352 3.3 tOhm 14 R. 114 57.11.352 3.0 tOhm 18 R. 115 57.11.312 3.3 tOhm 18 R. 116 57.55.2050 50 mOhm 38 R. 117 57.55.2050 50 mOhm 38 R. 119 57.11.3100 10 Ohm 54 R. 111 57.55.2050 50 mOhm 38 R. 119 57.11.3100 10 Ohm 54  |          |              |          |                       |             |
| R. 106 57.11.3103 10 toba 54 R. 107 57.11.3103 10 toba 54 R. 110 57.11.3222 2.2 toba 54 R. 1110 57.11.3222 3.3 toba 54 R. 1112 57.11.31312 3.3 toba 54 R. 1112 57.11.31312 3.3 toba 54 R. 1114 57.11.3164 6.8 toba 54 R. 114 57.11.3164 2.2 toba 54 R. 115 57.11.3132 3.3 toba 14 R. 116 57.11.3132 3.3 toba 54 R. 117 57.11.3120 3.3 toba 34 R. 118 57.55.2050 50 abba 33, 34 R. 119 57.11.3100 10 oba 34 RA 101 00.00.0000 not used  |          |              |          |                       |             |
| R. 1109 57.11.31203 10 tōbas 54 R. 1110 57.11.3247 27.2 tōbas 54 R. 1111 57.11.3473 47 tōbas 54 R. 1112 57.11.3332 3.3 tōbas 54 R. 1114 57.11.3542 6.8 tōbas 54 R. 114 57.11.3542 6.8 tōbas 14 R. 114 57.11.3542 6.8 tōbas 14 R. 116 57.11.3333 3.3 tōbas 54 R. 118 57.55.2050 50 mbbas 34 R. 118 57.55.2050 50 mbbas 34 R. 118 57.55.2050 50 mbbas 34 R. 119 57.11.3100 10 0bas 54 RA. 101 00.00.00000 not used   |          |              |          |                       |             |
| R110 57.11.3222 2.2 80Na 54 R111 57.11.3473 47 80Na 54 R112 57.11.3324 33.8 80Na 54 R113 57.11.3154 150 80Na 54 R114 57.11.3154 150 80Na 54 R114 57.11.3220 22 0Na 54 R115 57.11.3220 22 0Na 54 R116 57.11.3123 3.3 80Na 54 R117 57.11.3132 1.3 80Na 14 R118 57.56.2050 50 80Na 34 R118 57.56.2050 50 80Na 34 R119 57.11.3100 10 0Na 54 RA101 00.00.00000 not used   | R108     | 57.11.3103   |          |                       |             |
| R  |          |              |          |                       |             |
| R. 112 57.11.3332 3.3 tOhe 54 R. 113 57.11.3154 150 tOhe 54 R. 114 57.11.3562 6.8 tOhe 14 R. 115 57.11.3262 7.2 Ohe 54 R. 116 57.11.3322 3.3 tOhe 54 R. 117 57.11.3322 3.3 tOhe 54 R. 117 57.11.3132 1.3 tOhe 14 R. 118 57.56.2050 30 aOhe 34 R. 119 57.56.2050 30 aOhe 34 RA. 101 00.00.0000 not used   | R110     | 57.11.3222   | 2.2 kOhm | 54                    |             |
| R113 57.11.3154 150 tōha 54 R114 57.11.3152 6.8 tōha 14 R115 57.11.3220 22 ōha 54 R116 57.11.3122 3.3 tōha 54 R116 57.11.3132 1.3 tōha 14 R118 57.56.2050 50 moha 34, 314 R118 57.56.2050 50 moha 34, 314 R119 57.11.3100 10 ōha 54 RA101 00.00.00000 not used   | R111     | 57.11.3473   | 47 kOhm  | 54                    |             |
| R113 57.11.3154 150 tōbus 54 R114 57.11.3162 6.8 tōbus 14 R115 57.11.3220 22 ōbus 54 R116 57.11.3122 0.3 tōbus 54 R117 57.11.3132 1.3 tōbus 14 R118 57.5.5.2050 50 mobus 34, 314 R118 57.5.5.2050 50 mobus 54 R119 57.11.3100 10 ōbus 54 RA101 00.00.00000 not used  | R112     | 57.11.3332   | 3.3 kOhm | 54                    |             |
| R114 57.11.3652 6.8 töhu lk R115 57.11.320 22 Ohu 54 R116 57.11.3312 3.3 töhu 54 R117 57.11.3121 1.3 töhu 14 R118 57.52.050 50 uöhu 31, 34 R119 57.51.1310 10 Ohu 34 RA101 00.00.00000 not used  | R113     | 57.11.3154   |          | 54:                   |             |
| R115 57.11.3220 22 0hm 54 R116 57.11.3320 3.3 E0hm 54 R117 57.11.3312 1.3 E0hm 14 R118 57.55.2050 50 m0hm 34, 3W R118 57.55.2050 50 m0hm 54 R110 00.00.00000 not used  |          |              |          |                       |             |
| R116 57.11.3332 3.3 tOhm 54 R117 57.11.3132 1.3 tOhm 14 R118 57.56.2050 50 mOhm 34, 3W R119 57.11.3100 10 Ohm 54 RA101 00.00.00000 not used  |          |              |          |                       |             |
| R117 57.11.3132 1.3 tOhm 14<br>R118 57.56.2050 50 mohm 34 34 39<br>R119 57.11.3100 10 Ohm 54<br>RA101 00.00.00000 not used   |          |              |          |                       |             |
| R118 57,55,2050 S0 m0Nmm 34, 39<br>R119 57,11,3100 10 0hm 54<br>RA101 00.00.00000 not used   |          |              |          |                       |             |
| R119 57.11.3100 10 0hm 54  RA101 00.00.0000 not used   |          |              |          |                       |             |
| RA101 00.00.0000 not used  |          |              |          |                       |             |
|  |          |              |          | not used              |             |
|  |          |              |          |                       |             |

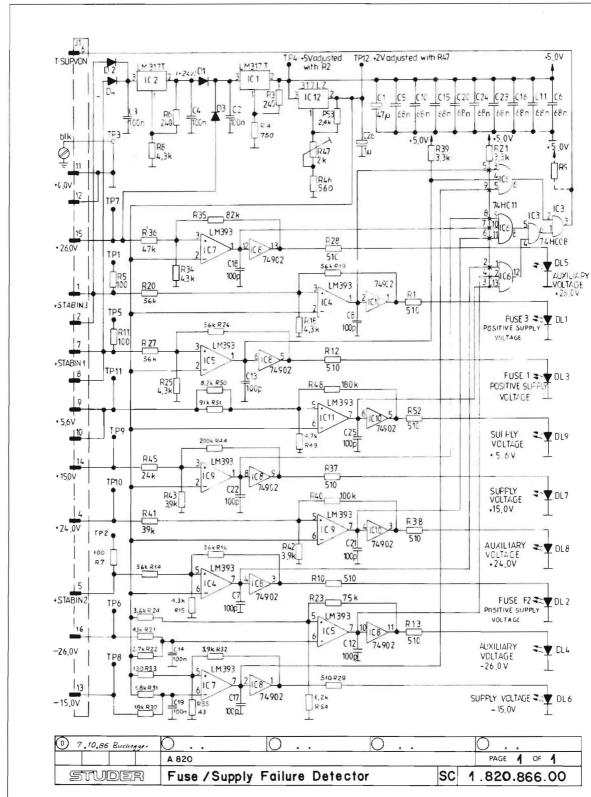
Ce-Ceramic, El-Electrolytic, MPETP-Metallized Polyesterfilm, PETP-Polyesterfilm, MPC-Metallized Polycarbonate film.

MANUFACTURER: GI-General Instruments, IPS-Integrated Power Smalconductor, IR-International Mectifier, Mot-Motorola, Ph-Philips, SGS-SGS/Ates, Sie-Siamens, St-Studer, Tho-Thomson, Un-Unitrode.

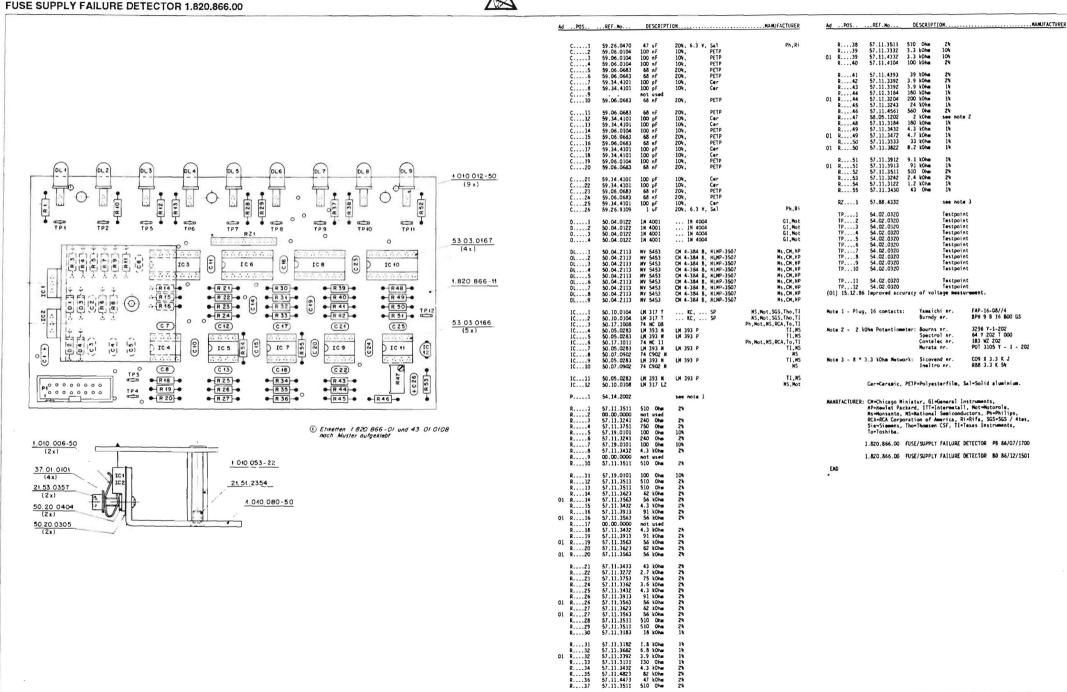
PZ 90/03/2100 1.820.833.00 STABILIZER +/- 26 V 1.820.833.00 STABILIZER +/- 26 Y P2 91/10/0301



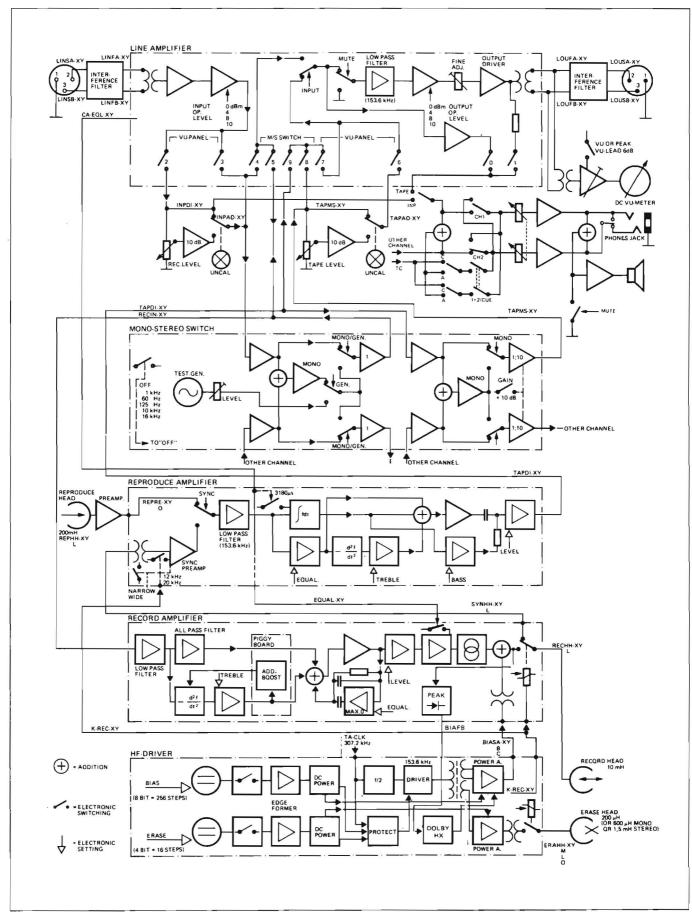
# FUSE SUPPLY FAILURE DETECTOR 1.820.866.00



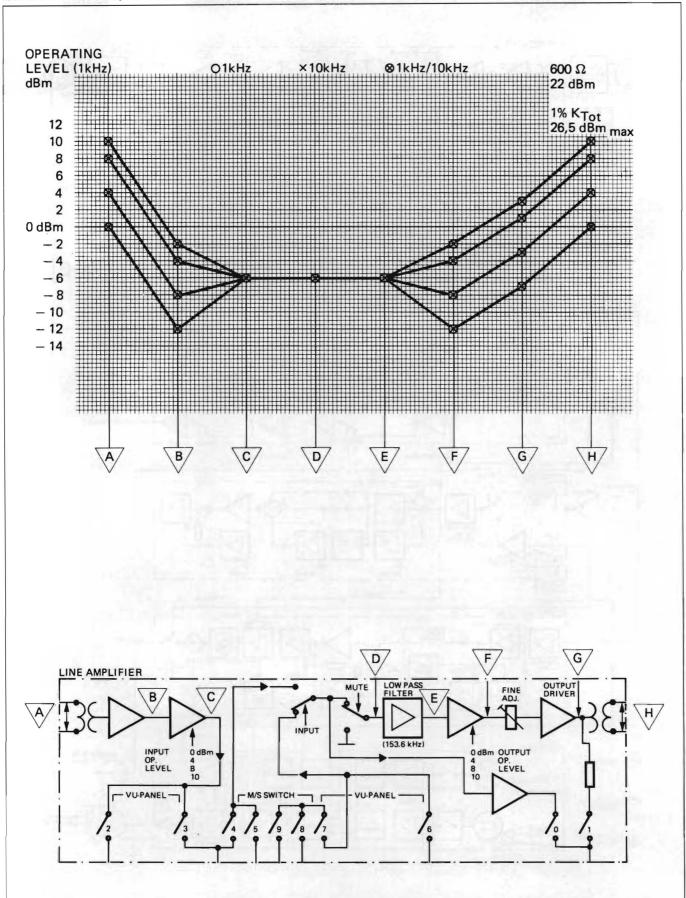


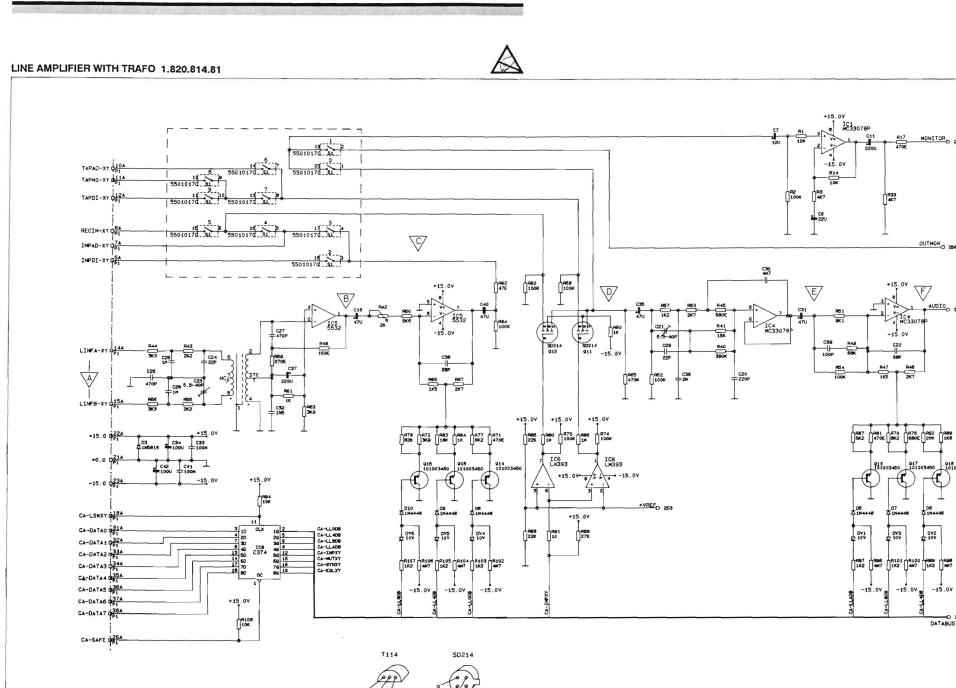


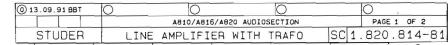
### **AUDIO BLOCK DIAGRAM**



### LEVEL DIAGRAMS, LINE AMPLIFIER







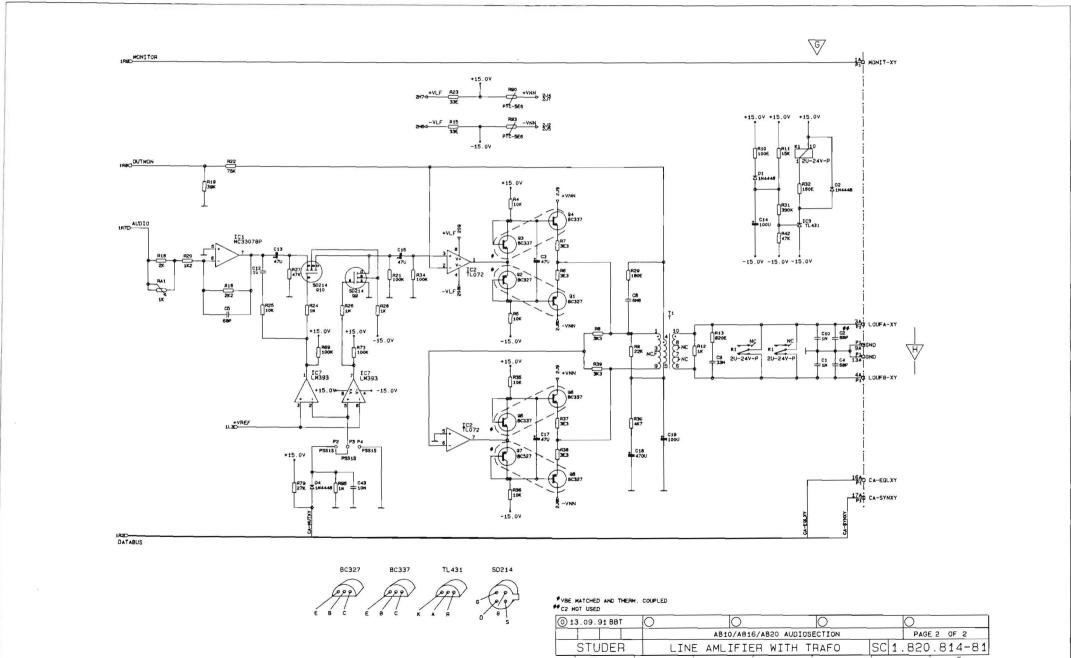
OUTHON O 284

045

DATABUS

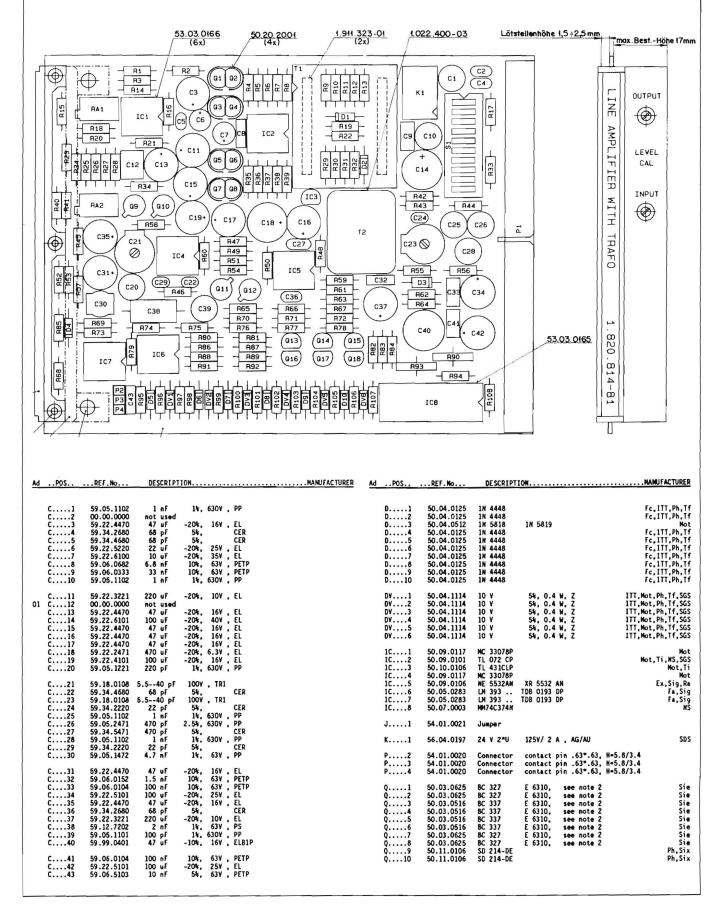
#### LINE AMPLIFIER WITH TRAFO 1.820.814.81





#### **LINE AMPLIFIER WITH TRAFO 1.820.814.81**

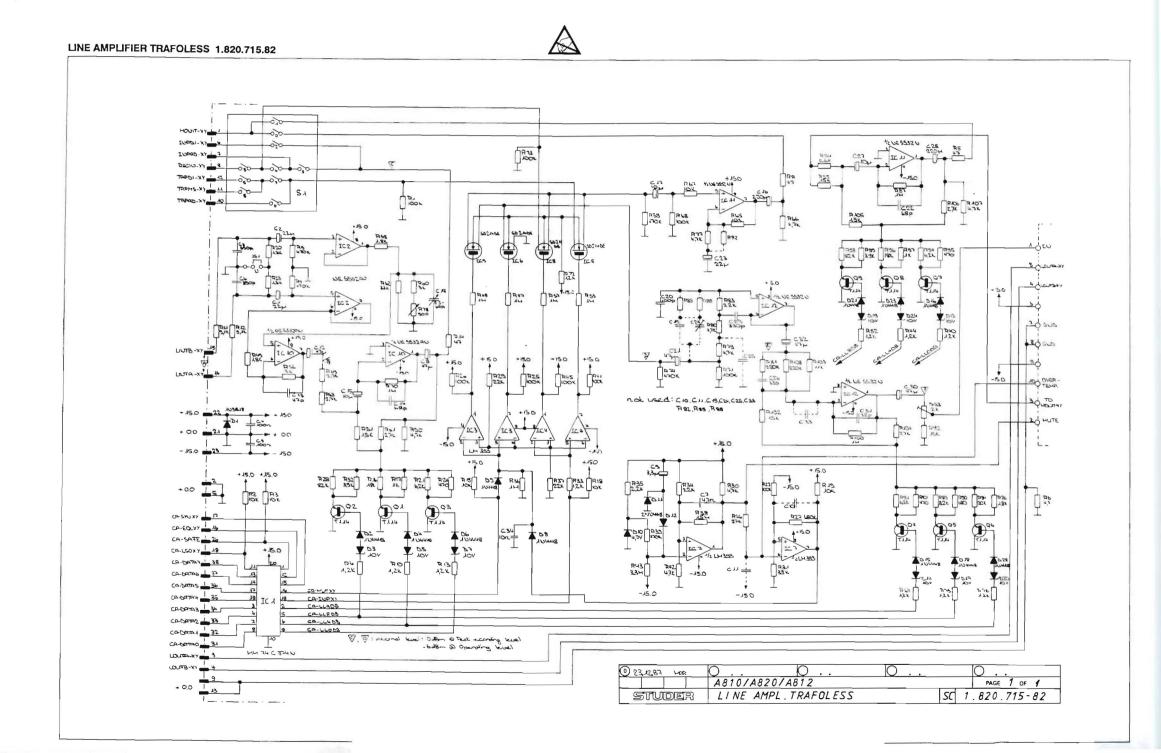




# LINE AMPLIFIER WITH TRAFO 1.820.814.81



|  | DESCRIPTIONMANUFACTURER   | AdPOSREF.No DESCRIPTION  |
|--|---|--|
| Q11 50.11.0106<br>Q12 50.11.0106<br>Q13 1.010.034.50<br>Q14 1.010.034.50<br>Q15 1.010.034.50<br>Q16 1.010.034.50<br>Q17 1.010.034.50<br>Q18 1.010.034.50   | SD 214-0E   | R81 57.11.3471 470 Ohm 1% 0207 MF R82 57.11.3104 100 kOhm 10% 0207 MF R83 57.11.3183 18 kOhm 5% 0207 MF R84 57.11.3102 1 kOhm 1% 0207 MF R85 57.11.3223 22 kOhm 10% 0207 MF R86 57.11.3223 1 MOhm 10% 0207 MF R87 57.11.3622 6.2 kOhm 5% 0207 MF R88 57.11.3273 27 kOhm 10% 0207 MF R88 57.11.3273 27 kOhm 10% 0207 MF R89 57.11.3182 1.8 kOhm 11% 0207 MF                     |
| R  | 10 kOhm 5%, 0207, MF 100 kOhm 1%, 0207, MF 4.7 kOhm 1%, 0207, MF 10 kOhm 5%, 0207, MF 13.3 Ohm 1%, 0207, MF 3.3 Ohm 1%, 0207, MF 3.3 Ohm 1%, 0207, MF 22 kOhm 1%, 0207, MF 120 kOhm 5%, 0207, MF 120 kOhm 1%, 0207, MF 120 kOhm 1%, 0207, MF                | R90 57.99.0209 5.6 0hm PTC  R91 57.11.3102 1 k0hm 10%, 0207 , MF R92 57.11.3203 20 k0hm 5%, 0207 , MF R93 57.99.0209 5.6 0hm PTC  R94 57.11.3103 10 k0hm 10%, 0207 , MF R95 57.11.3105 1 M0hm 10%, 0207 , MF R96 57.11.5475 4.7 M0hm 10%, 0207 , MF R97 57.11.3122 1.2 k0hm 10%, 0207 , MF R98 57.11.5475 4.7 M0hm 10%, 0207 , MF R99 57.11.3122 1.2 k0hm 10%, 0207 , MF       |
| R. 11 57.11.3153 R. 12 57.11.3102 R. 13 57.11.3021 R. 14 57.11.3103 R. 15 57.11.3222 R. 17 57.11.3222 R. 17 57.11.3471 R. 18 57.11.3293 R. 20 57.11.3193   | 15 kOhm 54, 0207, MF 1 kOhm 54, 0207, MF 820 Ohm 54, 0207, MF 10 kOhm 14, 0207, MF 33 Ohm 54, 0207, MF 2.2 kOhm 54, 0207, MF 470 Ohm 54, 0207, MF 2 kOhm 14, 0207, MF 139 kOhm 14, 0207, MF 1.2 kOhm 54, 0207, MF   | R100 57.11.5475 4.7 MOhm 10%, 0207 , MF  R101 57.11.3122 1.2 kOhm 10%, 0207 , MF  R102 57.11.5475 4.7 MOhm 10%, 0207 , MF  R103 57.11.3122 1.2 kOhm 10%, 0207 , MF  R104 57.11.5475 4.7 MOhm 10%, 0207 , MF  R105 57.11.3122 1.2 kOhm 10%, 0207 , MF  R106 57.11.5475 4.7 MOhm 10%, 0207 , MF  R107 57.11.3122 1.2 kOhm 10%, 0207 , MF  R108 57.11.3103 10 kOhm 10%, 0207 , MF |
| R21 57.11.3104 R22 57.11.3753 R23 57.11.3753 R24 57.11.3105 R25 00.00.0000 R26 57.11.3105 R27 57.11.3473 R28 57.11.3102 R29 57.11.3181 R30 57.11.3472  | 100 kOhm 5½, 0207 , MF 75 kOhm 1½, 0207 , MF 33 0hm 5½, 0207 , MF 1 MOhm 10½, 0207 , MF not used 1 MOhm 10½, 0207 , MF 47 kOhm 5½, 0207 , MF 1 kOhm 10½, 0207 , MF 1 kOhm 10½, 0207 , MF 1 kOhm 5½, 0207 , MF 1 kOhm 5½, 0207 , MF                          | RA1 58.05.0102 1 k0hm 104, .5 W . PMG RA2 58.05.0202 2 k0hm 104, .5 W . PMG S1 55.01.0170 DIL-Switch 10*A, Print T1 1.022.362.00 LINE OUTPUT TRAFO 1:1,46 T2 1.022.454.00 INPUT TRAFO 1:0,175  (01) 90/02/03 Removed R*C network for faster mute switching.  |
| R31 57.11.3394 R32 57.11.3181 R33 57.11.3102 R34 57.11.3103 R36 57.11.3103 R37 57.11.3339 R38 57.11.3339 R39 57.11.3332 R40 57.11.3339   | 390 kOhm 104, 0207 . MF 180 Ohm 104, 0207 . MF 4.7 kOhm 54, 0207 . MF 100 kOhm 54, 0207 . MF 10 kOhm 54, 0207 . MF 10 kOhm 54, 0207 . MF 10 kOhm 54, 0207 . MF 3.3 Ohm 14, 0207 . MF 3.3 Ohm 14, 0207 . MF 3.9 kOhm 14, 0207 . MF                           | Note 1 - BC 337 E selected for inverse mode (1BC = 3 mA)  UCE < 0.7 mV, 1E 0 mA. UCE < 25 mV, 1E 4 mA.  Note 2 - Q1-Q2, Q3-Q4, Q5-Q6, Q7-Q8 matched and thermically coupled with 50.20.2001.  Cer-Ceramic, ElBip=Electrolytic Bipolar, El=Electrolytic, Sal-Solid aluminum.  MANUFACTURER: Ex=Exar, Fas=Faselec, Fc=Fairchild, GI=General Instruments,                         |
| R41 57.11.3153 R42 57.11.3473 R43 57.11.3232 R44 57.11.3332 R45 57.11.3681 R46 57.11.3682 R47 57.11.3152 R48 57.11.3163 R49 57.11.3683 R50 57.11.3683  | 3.3 kOhm 14, 0207, MF<br>680 Ohm 14, 0207, MF<br>2.7 kOhm 14, 0207, MF<br>1.5 kOhm 14, 0207, MF<br>160 Ohm 54, 0207, MF<br>68 kOhm 14, 0207, MF   | ITT-intermetall, Mot-Motorola, NS-Mational Semicond., Ph-Philips, Ra-Raytheon, RCA-Padio Corp. of America, Ses-Sescosem, Sie-Siemens, Sig-Signetics, SGS-SGS/Ates, St-Studer, Six-Siliconix, TS-Teledyne Semiconductors, Tf-Telefunken, TI-Texas Instruments.  1.820.814.81 LINE AMPLIFIER WITH TRAFO BBT91/10/0200  1.820.814.81 LINE AMPLIFIER WITH TRAFO BBT92/02/0301      |
| R51 57.11.3912 R52 57.11.3104 R53 57.11.3272 R54 57.11.3222 R56 57.11.3222 R56 57.11.3222 R57 57.11.3122 R58 57.11.3102 R59 57.11.3102 R59 57.11.3102  | 100 k0hm 1½, 0207 , MF<br>2.7 k0hm 1½, 0207 , MF<br>100 k0hm 5½, 0207 , MF<br>2.2 k0hm 1½, 0207 , MF<br>3.3 k0hm 1½, 0207 , MF<br>1.2 k0hm 1½, 0207 , MF<br>1.0 k0hm 1½, 0207 , MF  |  |
| R 61 57 . 11 . 3102<br>R 62 57 . 11 . 3470<br>R 63 57 . 11 . 3392<br>R 64 57 . 11 . 3104<br>R 65 57 . 11 . 3474<br>R 66 57 . 11 . 3272<br>R 67 57 . 11 . 3272<br>R 68 57 . 11 . 3232<br>R 69 57 . 11 . 3204<br>R 70 57 . 11 . 3822 | 1 kOhm 5%, 0207 . MF 47 Ohm 10%, 0207 . MF 3.9 kOhm 5%, 0207 . MF 100 kOhm 10%, 0207 . MF 470 kOhm 10%, 0207 . MF 1.5 kOhm 1%, 0207 . MF 2.7 kOhm 1%, 0207 . MF 22 kOhm 10%, 0207 . MF 100 kOhm 10%, 0207 . MF 8.2 kOhm 5%, 0207 . MF                       |  |
| R71 57.11.3471<br>R72 57.11.3392<br>R73 57.11.3104<br>R74 57.11.3104<br>R76 57.11.3621<br>R77 57.11.3622<br>R78 57.11.3622<br>R79 57.11.3623<br>R79 57.11.3623   | 470 Ohm 1½ 0207 , MF 3.9 k0hm 1½, 0207 , MF 100 k0hm 10½, 0207 , MF 100 k0hm 10½, 0207 , MF 100 k0hm 10½, 0207 , MF 100 k0hm 1½, 0207 , MF 680 Ohm 1½, 0207 , MF 68.2 k0hm 5½, 0207 , MF 82 k0hm 5½, 0207 , MF 27 k0hw 10½, 0207 , MF 1 M0hm 10½, 0207 , MF |  |





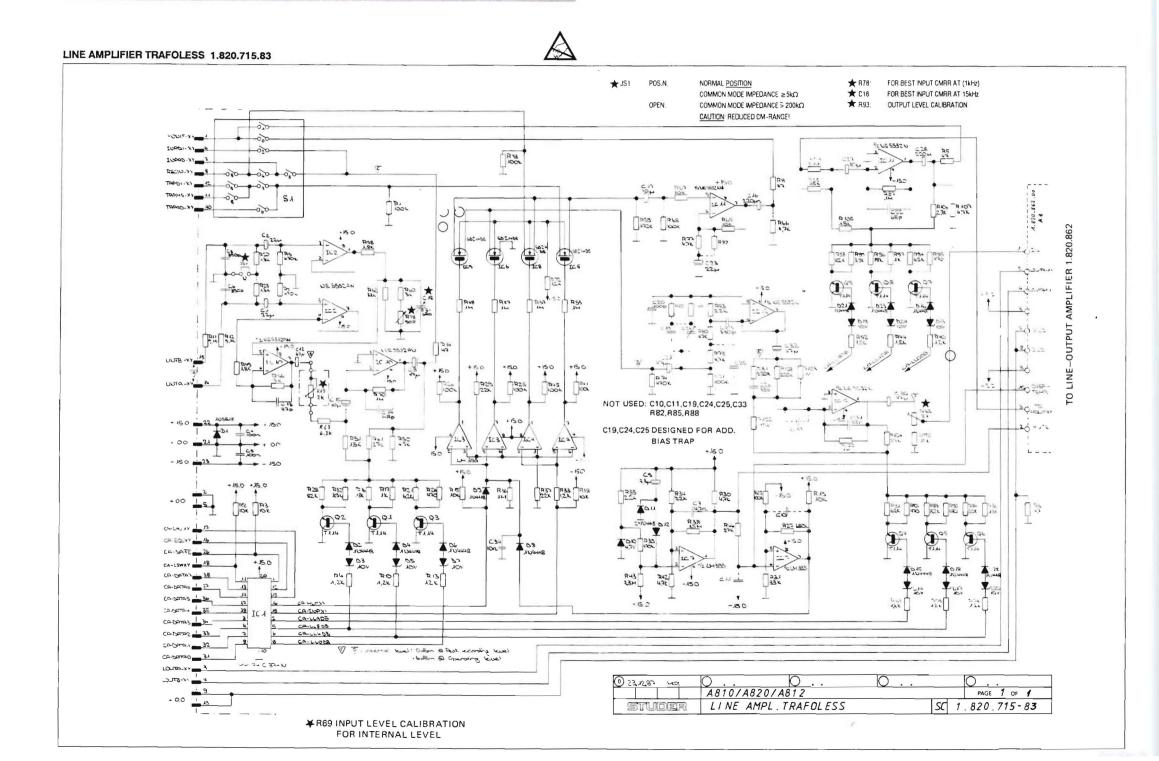
#### LINE AMPLIFIER TRAFOLESS 1.820.715.82

| NE AMPLIFIER TRAFOLESS 1.820.715.82  |                             |  |  |
|--|-----------------------------|--|--|
|  |                             | AdPOSREF.No DESCRIPTION  | AdPOSREF.Mo DESCRIPTION  |
| 53 03.0165  50 20 1005 (4x)  | 28 21.4370 (3x)             | D1 50.04.0512 1N5818 Not  D2 50.04.0125 1N48445 IIT Ph. Set  O3 50.04.1123 1N4445 IIT Ph. Set  D5 50.04.1114 10V Z 54 IIT Ph. Set  D5 50.04.1114 10V Z 54 IIT Ph. Set  D7 50.04.1114 10V Z 54 IIT Ph. Set  D7 50.04.1114 10V Z 54 IIT Ph. Set  D7 50.04.1114 10V Z 54 IIT Ph. Set  D9 50.04.0125 1N4445 IIT Ph. Set  D9 50.04.0125 NA445 IIT Ph. Set  D9 50.04.012   | R51 57.11.3152 1.5 lOthe 18 R52 57.11.4152 1.2 lOthe 54 R53 57.11.4105 1.3 lOthe 54 R53 57.11.352 5.6 lOthe 54 R55 57.11.352 5.6 lOthe 54 R55 57.11.3153 15 lOthe 28 R55 57.11.3103 13 lOthe 18 R55 57.11.3105 1 lOthe 54 R55 57.11.3105 1 lOthe 54 R55 57.11.3103 1 lOthe 54 R59 57.11.34174 470 lOthe 54 R59 57.11.3427 31 lOthe 54 R59 57.11.3427 31 lOthe 18   |
| 28.1   | 1820 745-01<br>1.040 009-33 | 011 50,04.0125 1M4448 III,Ph,Sen 012 50,04.0125 1M4448 III,Ph,Sen 012 50,04.0125 1M4448 III,Ph,Sen 014 50,04.1114 10 V Z 54 IIII,Sen 015 50,04.0125 1M4448 III,Ph,Sen 015 50,04.0125 1M4448 III,Ph,Sen 017 50,04.1114 10 V Z 54 IIII,Sen 018 50,04.0125 1M4448 III,Ph,Sen 019 50,04.1114 10 V Z 54 III,Sen 019 50,04.1114 10 V Z 54 III,Sen 020 50,04.1114 10 V Z 54 III,Sen   | R61 57.11.3272 2.7 bOhm 14 R62 37.11.433 33 bChm 2½ R63 57.11.4323 2.7 bChm 2½ R64 57.11.4122 2.7 bChm 2½ R65 57.11.4102 10 bChm 2½ R65 57.11.4103 10 bChm 5½ R66 57.11.4103 10 bChm 5½ R68 57.11.4101 10 bChm 5½ R69 57.11.4103 10 bChm 5½  |
| HAFOLESS CS C   |                             | D21 50.04.0125 1M4445 1IT, Ph. Ses D22 50.04.0125 1M4445 1IT, Ph. Ses O23 50.04.0125 1M4445 1IT, Ph. Ses O23 50.04.0125 1M4448 1IT, Ph. Ses O24 50.04.1134 10V Z 54 IT, Ph. Ses O24 50.04.1134 10V Z 54 IT, Ph. Ses O24 50.05.001 M2474744 IC 2 50.09.0106 M25532AM 1R5512AMB, 5512AMB 519, K.R. R. 1C3 50.05.0283 1M393M 1T, MS 1C4 50.05.0283 1M393M 1T, MS 1C4 50.05.0283 1M393M 1T, MS 1C5 50.11.0106 50 214 DE 850 214 Ph. Six IT5 50.11.0106 50 214 DE 850 214 Ph. Six IT5 50.05.0283 1M393M 1T, MS 1C6 50.11.0106 50 214 DE 850 214 Ph. Six IT5 50.05.0283 1M393M 1T, MS 1C6 50.05.0283 1M393M 1T, MS | R73 57.11.4104 100 50hm 5h<br>R72 57.11.4102 1.2 1.2 10hm 5h<br>R73 57.11.4104 100 10hm 5h<br>R75 57.11.4124 470 10hm 5h<br>R75 57.11.4122 1.2 10hm 5h<br>R77 57.11.4122 1.2 10hm 5h<br>R77 57.11.427 4.7 10hm 2h<br>R78 56.01.850 500 0hm 2h<br>R79 57.11.4472 4.7 10hm 2h<br>R79 57.11.4472 4.7 10hm 2h<br>R79 57.11.4472 4.7 10hm 2h<br>R80 57.11.4472 4.7 10hm 2h<br>R80 57.11.4472 4.7 10hm 2h<br>R80 57.11.4472 4.7 10hm 2h<br>R80 57.11.4472 4.7 10hm 2h  |
| AMPLIFIED OF THE PROPERTY OF T |                             | IC8 50.11.0106 50 214 0E 850 214 Ph.3ix 1C10 50.11.0106 50 214 0E 850 214 Ph.3ix 1C10 50.09.0106 ME553ZAM XB53ZAM, S53ZAMB Sig.Lx, Ra IC11 50.09.0105 ME553ZAM XB53ZAM S53ZAM Sig.Lx, Ra IC12 50.09.0106 ME553ZAM XB53ZAM, S53ZAMB Sig.Lx, Ra JS1 54.01.0020 3 cont. Philips Nr. 2422 025 89303 See note 1   | R81 57.11.4224 220 kbhw 25 R83 07.00.000 mot wind of R R83 07.11.4222 22 kbhw 25 R84 57.11.3201 20 kbhw 55 R85 00.00.00000 mot wind N R85 57.11.3122 1.8 kbhw 15 R87 57.11.4105 1 Mbhw 54 R88 00.00.00000 not weed R89 57.11.4822 8.2 kbhw 55 R89 57.11.4825 8.2 kbhw 55 R89 57.11.4851 660 0hm 1t   |
| 1.5-2.5 Lotstellenhohe (1.820 745-12 ① \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \   |                             | 01 1.010.034.50 See Note 2 02 1.010.034.50 See Note 2 03 1.010.034.50 See Note 2 04 1.010.034.50 See Note 2 05 1.010.034.50 See Note 2 05 1.010.034.50 See Note 2 05 1.010.034.50 See Note 2 07 1.010.034.50 See Note 2  | R91 57, 11.3522 5.2 kOhm 54 R92 57, 11.4153 15 kOhm 54 R93 58,05,002 2 kOhm 54 R93 57,11.4151 31 kOhm 54 R94 57,11.4121 470 Ohm 14 R96 57,11.4121 18 kOhm 54 R97 57,11.4131 18 kOhm 54 R97 57,11.4132 12 kOhm 14 R99 57,11.4323 82 kOhm 54 R99 57,11.4323 82 kOhm 54 R99 57,11.3102 3.9 kOhm 54 R99 57,11.3102 3.9 kOhm 54 R90 57,11.3102 3.9 kOhm 54 R90 57,11.4103 3.9 kOhm 54   |
| (50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | JS 1                        | R 2 57.11.4103 10 folhes 5k R 3 57.11.4103 10 folhes 5k R 4 57.11.4102 1.2 folhes 5k R 4 57.11.4102 1.2 folhes 5k R 6 57.11.4410 47 Ohns 5k R 6 57.11.4410 47 Ohns 5k R 6 57.11.4410 47 Ohns 5k R 8 57.11.4410 47 Ohns 5k R 8 57.11.4410 47 Ohns 5k R 8 57.11.4410 47 Ohns 5k R 9 57.11.4410 47 Ohns 5k R 10 57.11.4412 1.2 folhes 5k  | R101 57.11.3471 470 0hm 1k R102 57.11.3152 1.5 b0hm 1k R104 57.11.3152 1.5 b0hm 1k R104 57.11.3272 2.7 b0hm 1k R105 57.11.3152 1.5 b0hm 1k R106 57.11.3272 2.7 b0hm 1k R106 57.11.3272 2.7 b0hm 1k R106 57.11.4224 2.7 b0hm 1k R108 57.11.4224 2.7 b0hm 3k R108 57.11.4224 2.7 b0hm 3k   |
| Ad .POSREF.No DESCRIPTION  |                             | R11 57.11.1912 9.1 tOhm 14 R25 57.11.1912 9.1 tOhm 14 R33 57.11.4122 1.2 tOhm 54 R34 57.11.4420 1.2 tOhm 54 R15 57.11.4400 10 tOhm 54 R15 57.11.4400 10 tOhm 54 R17 57.11.3100 1 tOhm 14 R17 57.11.3100 1 tOhm 54 R19 57.11.4103 10 tOhm 54 R19 57.11.4103 10 tOhm 54 R19 57.11.4103 10 tOhm 54 R20 57.11.3101 1312 1.3 tOhm 54  | Note 1 - Bridge Studer Nr. 54.01.0021<br>Philips Nr. 2422 024 88003<br>Note 2 - BC 237 B sel. for invers mode (iBC = 3 mA)<br>VCE < 0.7 mV, iE 0 mA. VCE < 25 mV, iE 4 mA  |
| C  | Ph                          | R 21 57.11.3622 6.2 b0hm 15 R 22 57.11.4104 100 b0 b0hm 56 R 23 57.11.4104 100 b0 b0hm 15 R 24 57.11.4312 1.3 b0hm 15 R 25 57.11.4310 100 b0hm 54 R 25 57.11.4104 100 b0hm 54 R 26 57.11.4104 100 b0hm 54 R 27 57.11.4604 680 b0hm 54 R 27 57.11.4623 82 b0hm 54 R 28 57.11.4223 22 b0hm 56 R 29 57.11.4223 22 b0hm 56 R 29 57.11.4422 4.7 b0hm 56   | Note 3 - 500 Ohm Potentiometer lin., 104 All Hammard Processing Company of the State of the Stat |
| C16 59.22.2221 220 uf -10%, 69, 61, 61, 62, 61, 61, 62, 62, 62, 62, 62, 62, 62, 63, 64, 64, 64, 64, 64, 64, 64, 64, 64, 64   | Ph<br>Ph<br>Ph              | R31 57.11.4333 33 kOhm 54 R32 57.11.3393 3.9 kOhm 1½ R33 57.11.422 1.2 kOhm 54 R34 57.11.422 1.2 kOhm 54 R35 57.11.423 22 kOhm 54 R36 57.11.423 22 kOhm 54 R37 57.11.4205 22 kOhm 54 R39 57.11.15155 1.5 kOhm 54 R39 57.11.1421 2.2 kOhm 54 R39 57.11.421 470 kOhm 54 R39 57.11.422 1.2 kOhm 54  | Ce-Carasic, El-Electrolytic, PETP-Polyestar, PP-Polypropylen Sal-Solid al Juninium.  MANUFACTURER: Ex-Exar, ITT-Intermetall, Mot-Motorola,   |
| C25 00.00 00000 not used C26 93.44.2330 33 pf C27 99.26.200 10 uf 209, 169, 541 C28 99.26.2100 10 uf 209, 169, 541 C28 99.26.2102 1331 330 pf 14, pp C29 99.26.1331 330 pf 14, pp C30 99.26.0470 47 uf 209, 6.37, 5a1 C31 99.42.220 22 pf C32 99.26.0470 47 uf 209, 6.37, 5a1 C33 00.00.0000 not used C34 99.06.5103 10 nf 58, 637, pETP   | Ph<br>Ph<br>Ph              | R 41 57.11.4104 100 tône 54 R 42 57.11.4104 4.7 tône 54 R 43 57.11.5315 3.3 tône 54 R 44 57.11.4124 1.2 tône 54 R 44 57.11.4124 1.2 tône 54 R 44 57.11.4104 100 tône 54 R 47 57.11.4104 100 tône 54 R 47 57.11.4105 1 100 tône 54 R 47 57.11.4105 1 100 tône 54 R 48 57.11.4105 1 100 tône 54 R 49 57.11.4105 1 100 tône 54 R 49 57.11.4105 1 100 tône 54 R 50 57.11.4105 1 100 tône 14 R 50 57.11.4472 4.7 tône   |  |

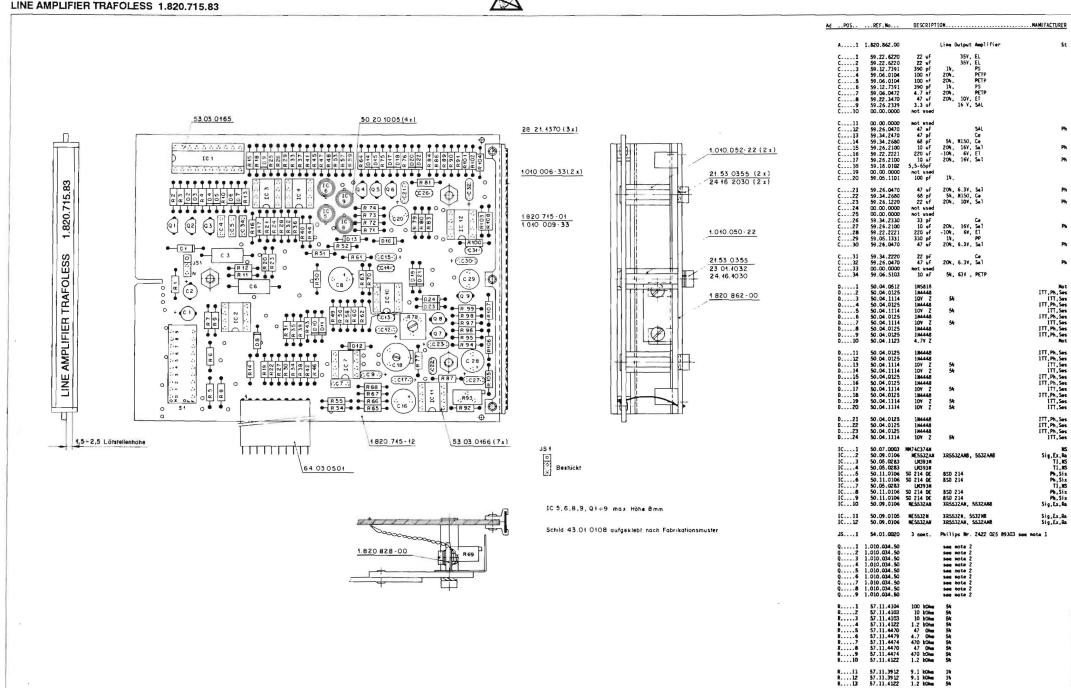


### **LINE AMPLIFIER TRAFOLESS 1.820.715.83**

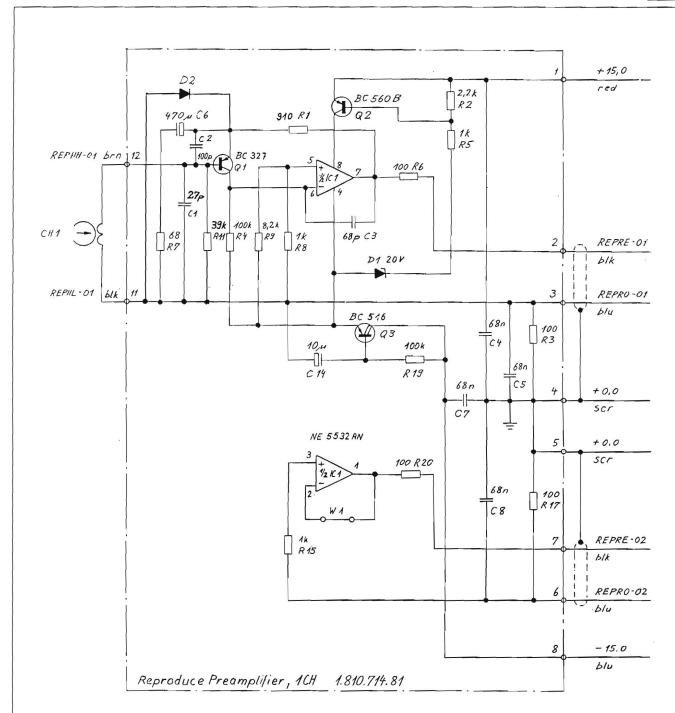
| THE WINEFILTER I   | HAPOLESS 1.020.7 15.03   |   |
|--|--|---|
| AdPOSREF.Mo  | DESCRIPTIONMANUFACTURER  | Ad .,POSREF_No DESCRIPTION  |
| R17 57.11.3102<br>R18 57.11.4103<br>R19 57.11.4103   | 47 Ohm 54: 10 kOhm 54: 18 kOhm 54: 1 kOhm 14: 10 kOhm 54: 10 kOhm 54: 1.3 kOhm 14: 1.3 kOhm 14:  | Note 1 - Bridge Studer Nr. 54.01.0021<br>Philips Nr. 2422 024 88003<br>Note 2 - BC 237 B sel. for invers mode (iBC = 3 mA)<br>VCE < 0.7 mV, iE 0 mA. VCE < 25 mV, iE 4 mA   |
| R22 57.11.4104 1 R23 57.11.3132 1 R24 57.11.3371 4 R25 57.11.4104 1 R26 57.11.4104 1 R27 57.11.4404 6 R28 57.11.4823 8 R29 57.11.4223                                | 6.2 kOhm 14 100 kOhm 54 1.3 kOhm 14 470 Ohm 14 100 kOhm 54 100 kOhm 54 82 kOhm 54 82 kOhm 54 82 kOhm 54 47 kOhm 54 47 kOhm 54 48 kOh | Note 3 - 500 Ohm Potentiometer lin., 10% Allen Bradly nr.   |
| R32 57.11.3392 3<br>R33 57.11.4122 1<br>R34 57.11.4223<br>R35 57.11.4222 2<br>R36 57.11.14105<br>R37 57.11.4223<br>R38 57.11.5155 1<br>R39 57.11.5155 1              | 33 kOhm 54 3.9 kOhm 14 1.2 kOhm 54 22 kOhm 54 2.2 kOhm 54 1 kOhm 54 2.2 kOhm 54 1 kOhm 55 1 kOhm | Note 5 - 2 kOhm Potentiometer lin., 10% Bourns nr.  |
| R41 57.11.4104 1 R42 57.11.4472 4 R43 57.11.5335 3 R44 57.11.4122 1 R45 57.11.4104 1 R46 57.11.4105 1 R47 57.11.4105 1 R48 57.11.4105 1 R49 57.11.3182 1             | 1.2 kOhm 5% 100 kOhm 5% 1.7 kOhm 5% 1.2 kOhm 5% 1.2 kOhm 5% 1.2 kOhm 5% 27 kOhm 5% 1 MOhm 5% 1 MOhm 5% 1 MOhm 5% 1 MOhm 5% 1.8 kOhm 5% 1.8 kOhm 5%   | NS=Mational Semiconductor, Ph=Philips, Ra=Raytheon, Ses=Seacosem, Sie=Siemens, Sig=Signetics, Six=Siliconix, St=Studer, If=Telefunten, TI=Texas Instruments.  1.820.715.83 LIME AMPLIFIER TRAFOLESS BD 88/08/3100 |
| R51 57.11.3152 1 R52 57.11.4122 1 R53 57.11.405 R54 57.11.3562 5 R55 57.11.4153 R56 57.11.3302 R57 57.11.4105 R58 57.11.3182   | 1.5 kOhm 1% 1.2 kOhm 5% 1.1 kOhm 5% 5.6 kOhm 5% 1.5 kOhm 2% 3 kOhm 1% 1.8 kOhm 1% 1.8 kOhm 1% 3 kOhm 1%  |   |
| R62 57.11.4333<br>R63 57.11.3432 4<br>R64 57.11.4122 1<br>R65 57.11.4103<br>R66 57.11.4472 4<br>R67 57.11.4103   | 2.7 kOhm 1% 33 kOhm 2% 1.3 kOhm 2% 1.2 kOhm 5% 1.0 kOhm 5% 10 kOhm 5% 10 kOhm 5% 10 kOhm 5% 20 kOhm 5% 2 kOhm 5% 3 men note 5  |   |
| R72 57.11.4122 1 R73 57.11.4104 1 R74 57.11.4174 4 R75 57.11.4122 1 R76 57.11.4122 1 R77 57.11.422 4 R78 58.01.8501 5 R79 57.11.4472 4                               | 100 kOhm 5k 1.2 kOhm 5k 1.2 kOhm 5k 170 kOhm 5k 1.2 kOhm 5k 1.2 kOhm 5k 1.7 kOhm 5k 1.7 kOhm 2k  |   |
| R82 00.00.0000 h<br>R83 57.11.4222 2<br>R84 57.11.3203<br>R85 00.00.0000 h<br>R86 57.11.3182 1<br>R87 57.11.4105<br>R88 00.00.0000 h<br>R88 9 57.11.4128             | 220 kOhm 2%  Not used  2.2 kOhm 2%  20 kOhm 5%  Not used  1.8 kOhm 1%  1 MOhm 5%  Not used  1.2 kOhm 1%  2.2 kOhm 1%  3.3 kOhm 1%  3.4 kOhm 1%  3.5 kOhm 1%  3.5 kOhm 1%  3.6 kOhm 1%  |   |
| R92 57.11.4153<br>R93 58.05.0202<br>R94 57.11.3622 6<br>R95 57.11.3471 4<br>R96 57.11.4183<br>R97 57.11.3102<br>R98 57.11.4823                                       | 5.2 kOham 5% 15 kOham 5% 2 kOham see note 4 2. kOham 5% 170 Oham 1% 18 kOham 5% 1 kOham 1% 82 kOham 5% 1. kOham 1% 19 kOham 1% 19 kOham 1% 19 kOham 1% 19 kOham 1%   |   |
| R101 57.11.3471 4<br>R102 57.11.3152 1<br>R103 57.11.3152 1<br>R104 57.11.3272 2<br>R105 57.11.3272 2<br>R105 57.11.3272 2<br>R107 57.11.4472 4<br>R108 57.11.4224 2 | 170 Ohm   14   1.5 kOhm   14   1.1 kOhm   14   1.7 kOhm   14   1.7 kOhm   14   1.5 kOhm   14   1.7 kOhm   14   1.7 kOhm   14   1.7 kOhm   15   1.7 kOhm   54   |   |
| 51 55.01.0170  | SHE-RI - 20/207072   |   |





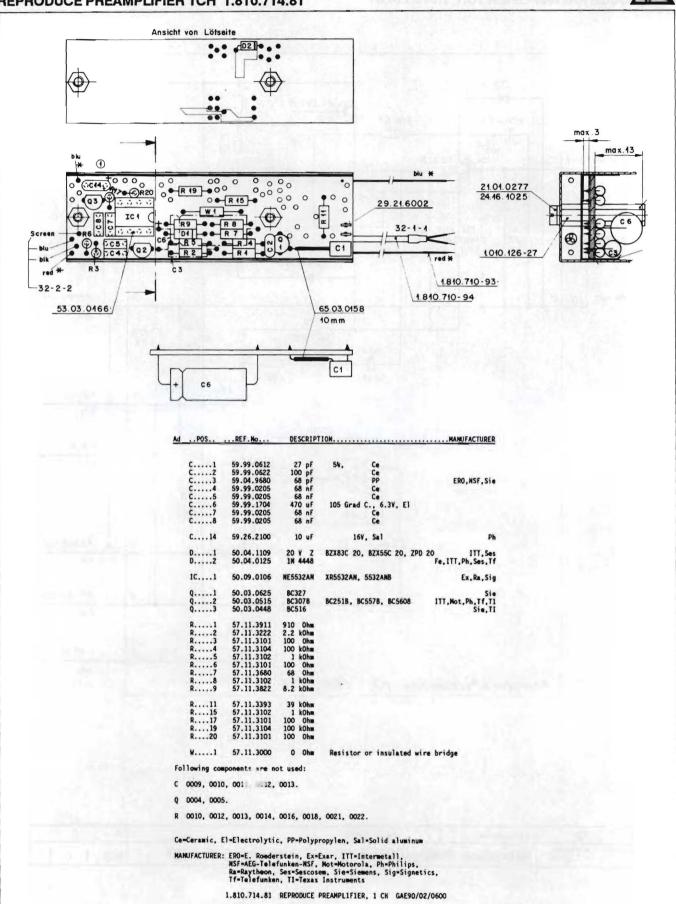


#### REPRODUCE PREAMPLIFIER 1CH 1.810.714.81

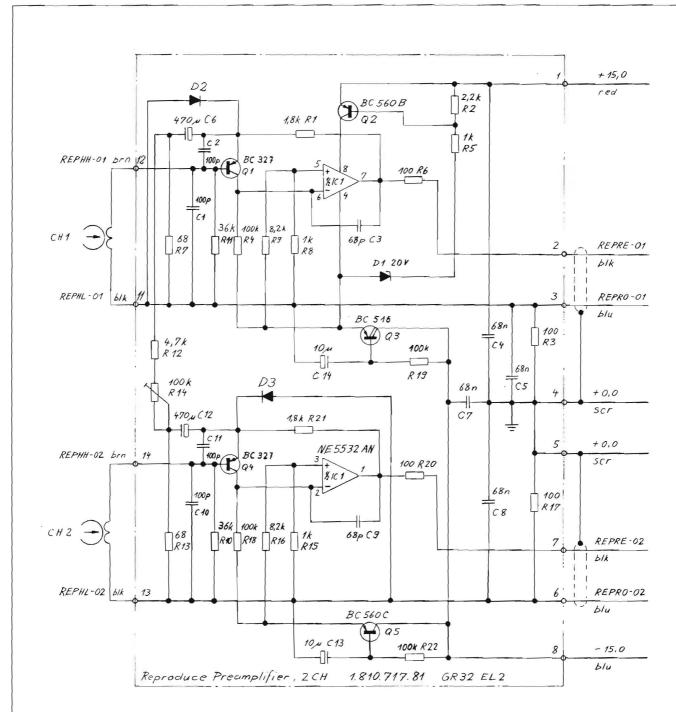


| 6.2.90 | Gamperle     | Audio Section   |    |              |        |             |
|--------|--------------|-----------------|----|--------------|--------|-------------|
| STUDER | Reproduce Pr | reamplifier 1CH | SC | 1.810.714-84 | PAGE 1 | OF <b>1</b> |

## REPRODUCE PREAMPLIFIER 1CH 1.810.714.81

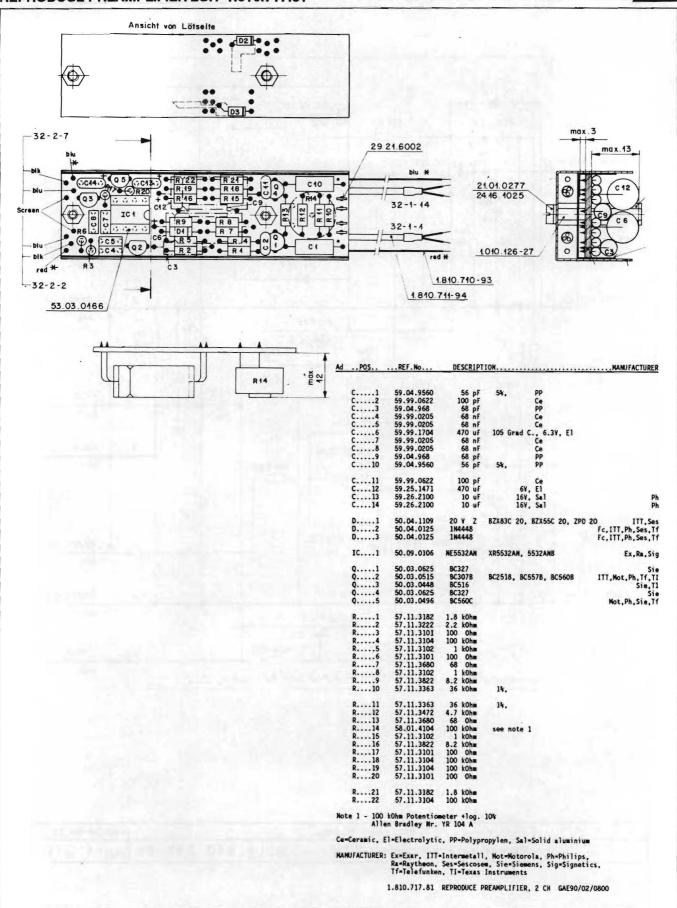


#### REPRODUCE PREAMPLIFIER 2CH 1.810.717.81

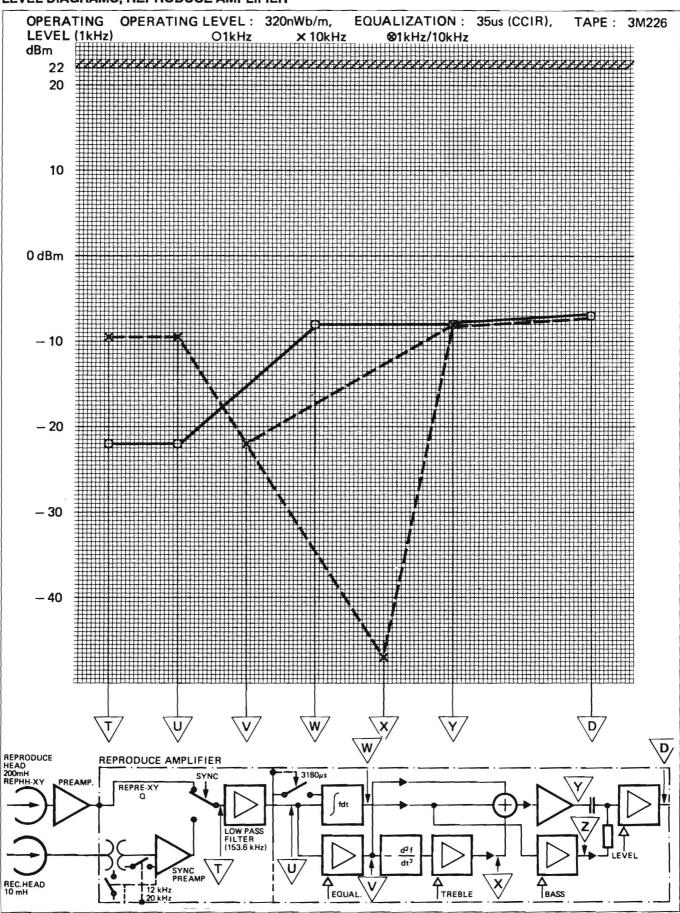


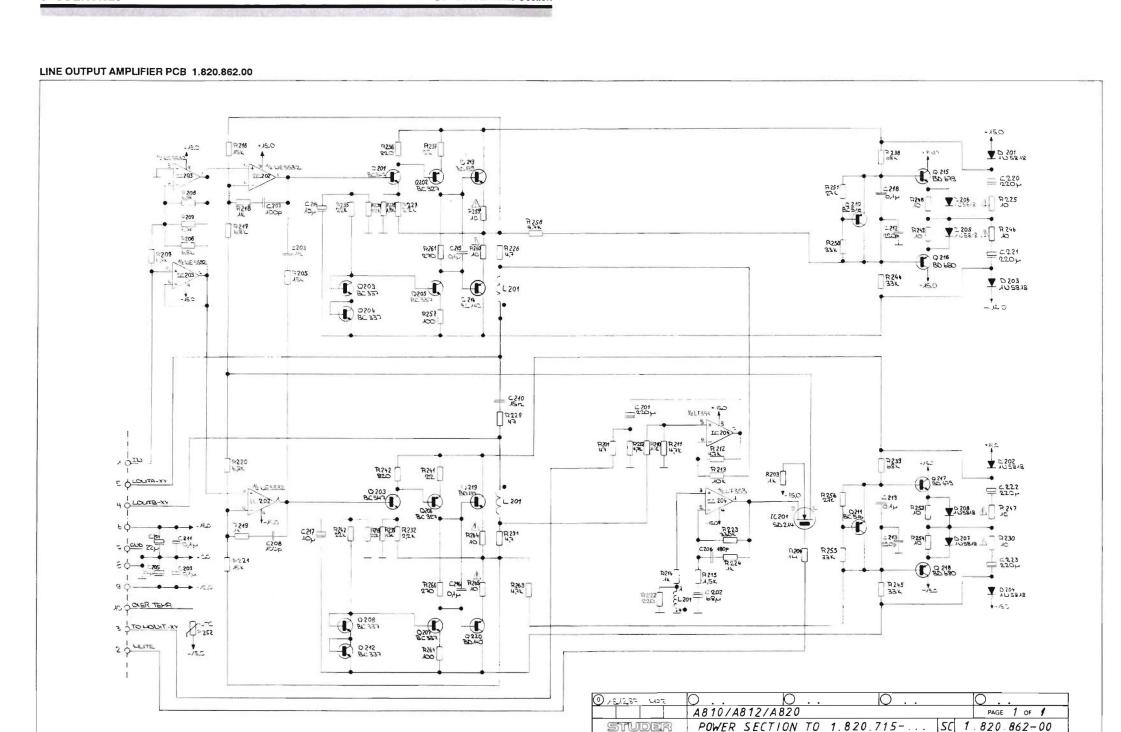
| 8.2.90 | Gämperle     | A 840 Audio  | Section |    |          |        | Part | of GR | 32 |
|--------|--------------|--------------|---------|----|----------|--------|------|-------|----|
| STUDER | Reproduce Pr | eamplifier 2 | 2 CH    | SC | 1. 8 10. | 717-81 | PAGE | 4 OF  | 4  |

#### **REPRODUCE PREAMPLIFIER 2CH 1.810.717.81**

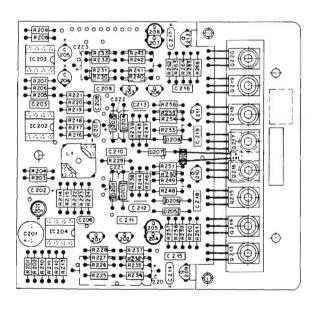


#### LEVEL DIAGRAMS, REPRODUCE AMPLIFIER



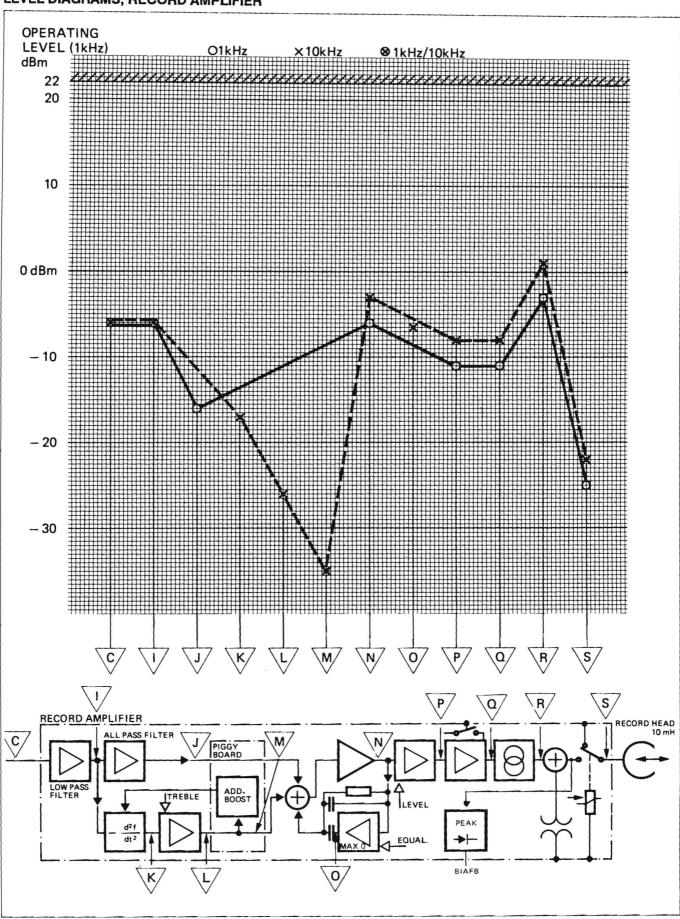


#### LINE OUTPUT AMPLIFIER PCB 1.820.862.00



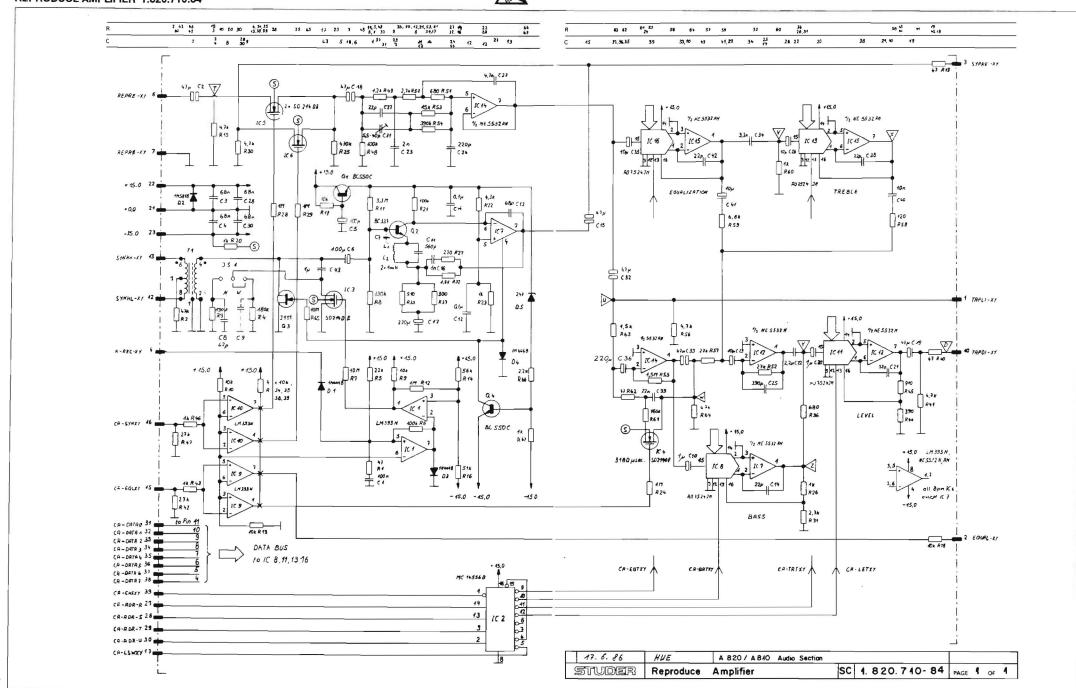
| Ad905.,  | REF.No DE   | ESCRIPTION   | KANUFACTURER   | Ad .POSREF. No DESCRIPTION   |
|--|---|--|--|--|
| C201<br>C202<br>C203<br>C204<br>C205<br>C206<br>C207<br>C208                           | 59.22.3221 220<br>59.26.0680 68<br>59.06.0102 1<br>59.22.6220 22<br>59.22.6220 22<br>59.34.2181 180<br>59.34.4101 100   | 0 uf -20%, 10V, E1<br>8 uF -20%, 6.3V, 5al<br>1 nF 10%, 63V, PFTP<br>2 uf -20%, 15V, E1<br>2 uf -20%, 15V, E1<br>0 pf 5%, 63V, Cer<br>0 pf 5%, 63V, Cer<br>0 pf 5%, 63V, Cer   | Ph   | R241 57.11.4220 22 Ohm 54 R242 57.11.4223 22 Ohm 54 R243 57.11.4223 22 Ohm 54 R244 57.11.4333 33 Ohm 54 R246 57.11.4333 33 Ohm 54 R246 57.19.0100 10 Ohm 54 See Mote 2 R247 57.19.0100 10 Ohm 54 See Mote 2  |
| C209<br>C210<br>C212<br>C213<br>C214<br>C215<br>C216                                   | 59.06.0104 0.1<br>59.06.0103 15<br>59.06.0104 0.1<br>59.34.4221 220<br>59.34.4221 220<br>59.26.2100 10<br>59.06.0104 0.1<br>59.06.0104 0.1  | 1 uF 104, 63Y , PETP  1 uF 104, 63Y , PETP  1 uF 104, 63Y , PETP  0 pF 54, 63Y , Cer  0 u - 204, 16Y , Sal  1 uF 104, 63Y , PETP  1 uF 104, 63Y , PETP   | Ph   | R 248 57.11.4100 10 Ohm 54 R 249 57.11.4100 10 Ohm 54 R 250 57.11.4333 33 töhm 54 R 251 57.11.4233 27 töhm 54 R 252 57.99.0208 11.2 töhm 54 R 252 57.99.0208 11.2 töhm 54 R 252 57.11.4100 10 Ohm 54 R 254 57.11.4100 10 Ohm 54 R 255 57.11.4303 33 töhm 54                    |
| C217<br>C218<br>C219<br>C220<br>C221<br>C222<br>C223                                   | 59.06.0104 0.1<br>59.06.0104 0.1<br>59.25.5221 220<br>59.25.5221 220<br>59.25.5221 220  | 0 uf -20%, 16% , 5a1<br>1 uf 10%, 63% , PETP<br>1 uf 10%, 63% , PETP<br>0 uf -10%, 40% , E1<br>0 uf -10%, 40% , E1<br>0 uf -10%, 40% , E1  | Ph   | R257 57.11.4101 100 Chem 5k R258 57.11.4272 4.7 böhm 5k R259 57.19.0100 10 Ohm 5k R250 57.19.0100 10 Ohm 5k R260 57.19.0100 10 Ohm 5k R261 57.11.4271 270 Ohm 5k R262 57.11.4101 100 Ohm 5k R263 57.11.4272 4.7 böhm 5k R263 57.11.4272 4.7 böhm 5k                            |
| D201<br>0202<br>0203<br>0204<br>D205<br>D206<br>D207<br>D208                           | 50.04.0512 1N 5<br>50.04.0512 1N 5<br>50.04.0512 1N 5<br>50.04.0512 1N 5<br>50.04.0512 1N 5<br>50.04.0512 1N 5  | 5818 IN 5819<br>5618 IN 5819<br>5618 IN 5819<br>5618 IN 5819<br>5618 IN 5819<br>5618 IN 5819<br>5618 IN 5819<br>5818 IN 5819<br>5818 IN 5819   | Met<br>Not<br>Not<br>Not<br>Not<br>Not<br>Not  | R264 57,19.0100 10 Ohm 5% See Note 2 R265 57,19.0100 10 Ohm 5% See Note 2 R266 57,11.4221 270 Ohm 5%  Note 1 - Should be replaced as set. (Q4, Q5, Q9 matched) or (Q7, Q8, Q12 matched)  Note 2 - Mas to be replaced by Originaltype or Philips-Type Nr. 2322 2055 13109       |
| IC201<br>IC202<br>IC203<br>IC204   | 50.09.0105 NE55<br>50.09.0105 NE55<br>50.09.0101 LF 3   | 14-DE 850214<br>532 N XR 5532 N, 5532 NB<br>532 N XR 5532 N, 5532 NB<br>5532 N TL 072 CP   | Sig,Ph<br>Sig,Ex,Ra<br>Sig,Ex,Ra<br>MS,TI  | Note 3 - MTC Themstor Philips-Nr. 2322 640 98005  Cer-Geramic, El-Electrolytic, PETP-Polyesterfile, Sal-Solid-Aluminium.   |
| Q201 Q202 Q203 Q204 Q205 Q206 Q207 Q207 Q208 Q207 Q208                                 | 50.03.0436 BC 2<br>50.03.0351 BC 3<br>50.03.0436 BC 2<br>50.03.0516 BC 3<br>50.03.0516 BC 3   | 337 See Note 1<br>327-25<br>337 See Note 1<br>337 See Note 1<br>337 See Note 1   | Mot, Ph, Sie, Tf<br>Sie, Mot<br>Mot, Ph, Sie, Tf<br>Sie<br>Sie<br>Sie, Mot<br>Sie<br>Sie<br>Sie<br>Sie | MANUFACTURER: EX=Exar, Not-Motorola, NS-Mational Semiconductor, Ph-Philips, Na-Vaytheon, SGS-SGS/Ates, Sig-Signatics, St-Studer, T-(Felefulner, I-Telear Instruments.  1.820.862.00 LINE OUTPUT AMPLIFIER 88785/04/0900  1.820.862.00 LINE OUTPUT AMPLIFIER 80 86/11/2701  END |
| Q211<br>Q212<br>Q213<br>Q214<br>Q215<br>Q216<br>Q217<br>Q218<br>Q219<br>Q219           | 50.03.0448 BC 5<br>50.03.0516 BC 3<br>50.03.0451 B0 3<br>50.03.0452 B0 1<br>50.03.0504 B0 6<br>50.03.0505 B0 6<br>50.03.0505 B0 6<br>50.03.0505 B0 6<br>50.03.0505 B0 6<br>50.03.0505 B0 6<br>50.03.0505 B0 6 | 337 See Note 1 139 140 679 680 679 680 119   | Sie, TI<br>Sie<br>Ph<br>Ph<br>SGS, Ph<br>SGS, Ph<br>SGS, Ph<br>SGS, Ph<br>Ph                           |  |
| R 201<br>R 202<br>R 203<br>R 204<br>R 205<br>R 206<br>R 207<br>R 208<br>R 209<br>R 209 | 57.11.4472 4.7<br>57.11.4102 1<br>57.11.4105 1.5<br>57.11.4152 1.5<br>57.11.3682 6.8<br>57.11.3682 6.8<br>57.11.3682 6.8<br>57.11.3682 6.8  | Ohm 54; ktOhm 54; ktOhm 54; ktOhm 54; ktOhm 54; ktOhm 54; ktOhm 14; ktOhm 14 |  |  |
| R211<br>R212<br>R213<br>R214<br>R215<br>R216<br>R217<br>R217<br>R219<br>R220           | 57.11.3472 4.7<br>57.11.3103 10<br>57.11.4102 1<br>57.11.4152 1.5<br>57.11.3153 15<br>57.11.3682 6.8<br>57.11.4102 1<br>57.11.4102 1  | iche 15 tohus 15 tohus 15 tohus 15 tohus 15 tohus 15 tohus 55 tohus 15 tohus 55 tohus 15 tohu |  |  |
| R 221<br>R 222<br>R 223<br>R 224<br>R 225<br>R 226<br>R 227<br>R 228<br>R 229<br>R 230 | 57.11.4221 220<br>57.11.4334 330<br>57.11.4102 1<br>57.19.0100 10<br>57.11.4479 4.7<br>57.11.3222 2.2<br>57.11.3132 1.3<br>57.11.4470 47  | kDhm 15 h h h h h h h h h h h h h h h h h h  |  |  |
| R231<br>R232<br>R233<br>R234<br>R235<br>R237<br>R238<br>R239<br>R240                   | 57.11.3222 2.2<br>57.11.3132 1.3<br>57.11.4223 22<br>57.11.4223 22<br>57.11.4221 820<br>57.11.4220 22<br>57.11.4683 68<br>57.11.4683 68   | Ohm 5k k0hm 1k k0hm 1k k0hm 1k k0hm 1k k0hm 1k k0hm 1k k0hm 5k |  |  |

### LEVEL DIAGRAMS, RECORD AMPLIFIER



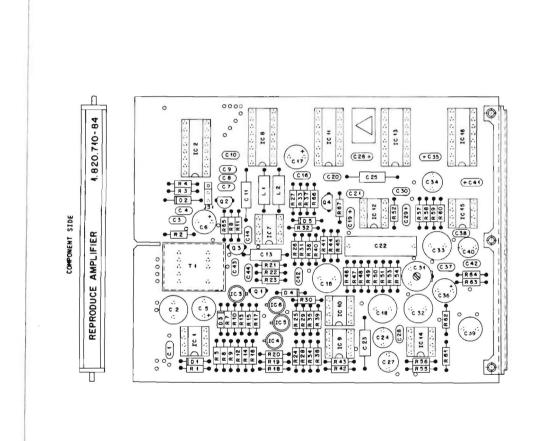
#### REPRODUCE AMPLIFIER 1.820.710.84



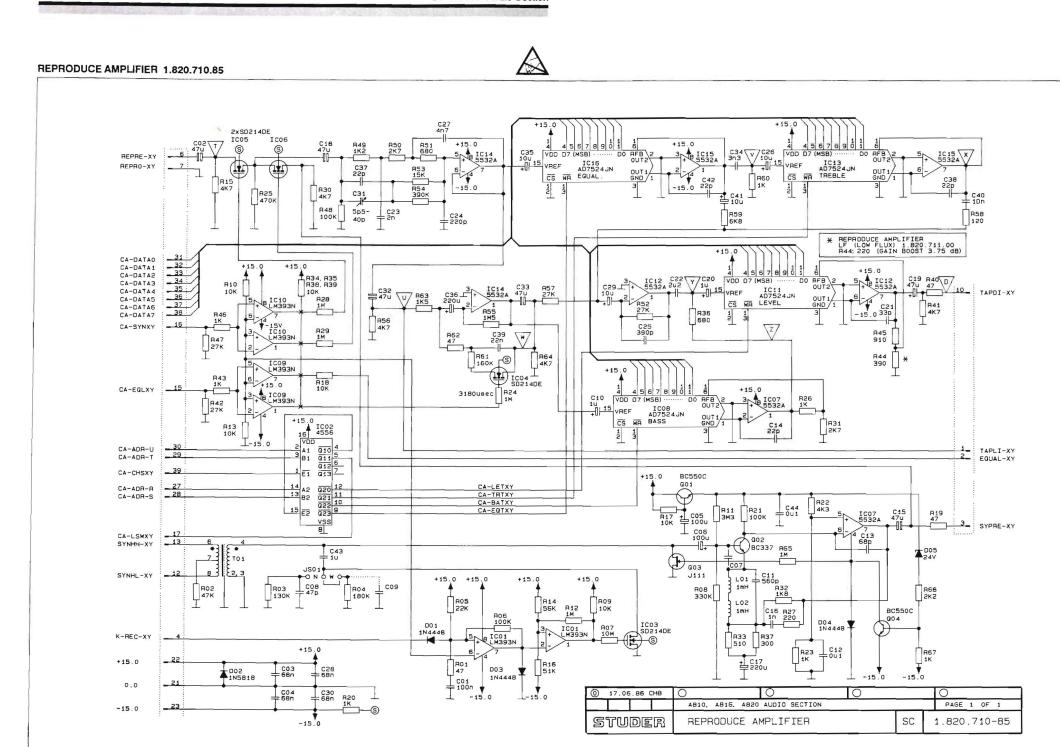




REPRODUCE AMPLIFIER 1.820.710.84

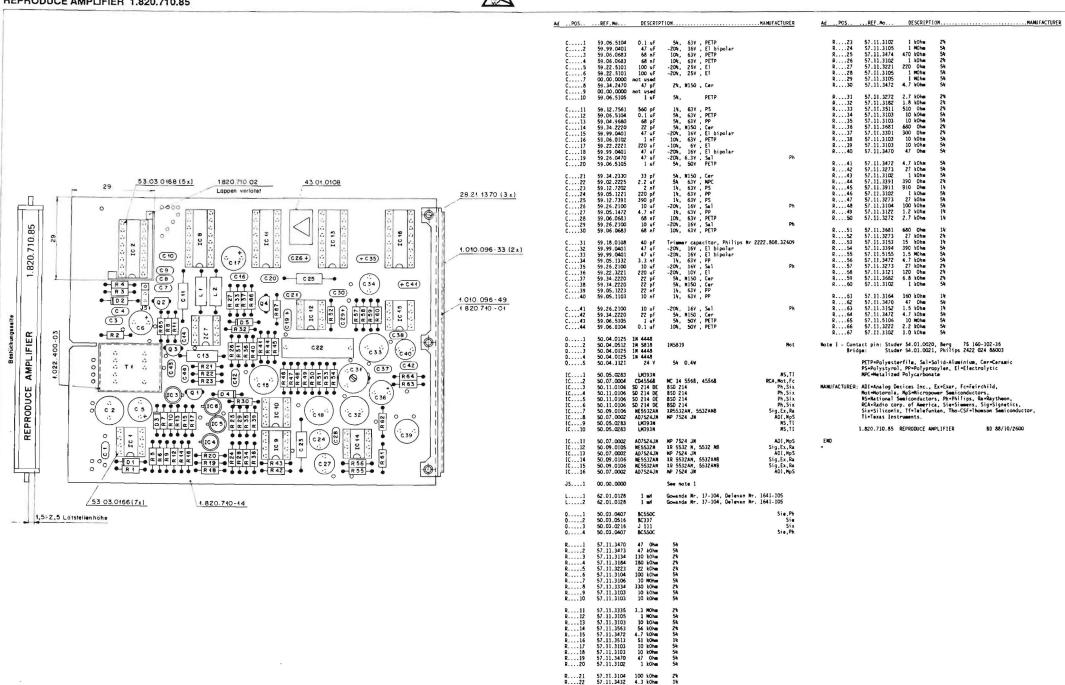


|   |  |   |  |  |   |  | -   |   |
|---|--|---|--|--|---|--|---|---|
| AdP05   | REf.No   | DESCRIP   |  | MANUFACTURER   | <u>AdPoS</u>  | REF.No   | OESCRIPTIO  | XMANUFACTURER   |
| C1<br>C2<br>C3<br>C4<br>C5<br>C6<br>C7<br>C8<br>C9          | 59.06.5104<br>59.99.0401<br>59.06.0683<br>59.06.0683<br>59.22.5101<br>00.00.0000<br>59.34.2470<br>00.00.0000<br>59.06.5105                             | 0.1 uF<br>47 uF<br>68 nF<br>88 nF<br>100 uF<br>100 uF<br>not used<br>47 pF<br>not used<br>1 uF                    | 54. 63Y , PETP204. 16V , El bipolar 104. 63Y , PETP 104. 63Y , PETP -204. 25Y , El -204. 25Y , El -204. 25Y , El -24. N150 , Cer   |  | R23<br>R24<br>R25<br>Q26<br>R27<br>R28<br>R29<br>Q30                          | 57.11.4102<br>57.11.4105<br>57.11.4474<br>57.11.4102<br>57.11.4221<br>57.11.4105<br>57.11.4105<br>57.11.4472<br>57.11.4272 | 1 kOhm<br>1 MOhm<br>470 kOhm<br>1 kOhm<br>220 Ohm<br>1 MOhm<br>1 MOhm<br>4.7 kOhm<br>2.7 kOhm               | 24<br>54<br>55<br>24<br>25<br>54<br>54<br>54<br>54<br>22<br>22  |
| C11<br>C12<br>C13<br>C14<br>C15<br>C16<br>C17<br>C18<br>C19 | 59.12.7561<br>59.06.5104<br>59.04.9680<br>59.34.2220<br>59.99.0401<br>59.06.0102<br>59.22.2221<br>59.99.0401<br>59.26.0470<br>59.06.5105               | 560 pF<br>0.1 uf<br>68 pF<br>22 pF<br>47 uF<br>1 nF<br>220 uF<br>47 uF<br>1 uF                                    | 1%, 61Y, PS 5%, 63Y, PETP 5%, 63Y, PP 5%, 81SO, Cer 20%, 16%, 61Y, PETP -10%, 64Y, PETP -20%, 63, Y, Sal   | Ph   | R. 32<br>R. 33<br>R. 34<br>R. 35<br>R. 36<br>R. 37<br>R. 38<br>R. 39<br>R. 40 | 57.11.4182<br>57.11.3511<br>57.11.4103<br>57.11.4103<br>57.11.403<br>57.11.403<br>57.11.4103<br>57.11.4103<br>57.11.4470   | 1.8 kOhm<br>510 Ohm<br>10 kOhm<br>10 kOhm<br>10 kOhm<br>680 Ohm<br>300 Ohm<br>10 kOhm<br>47 Ohm<br>47 Ohm   | en e  |
| C21<br>C22<br>C23<br>C24<br>C26<br>C27<br>C28               | 59.34.2330<br>59.02.2225<br>59.12.7202<br>59.05.1221<br>59.12.7391<br>59.26.2100<br>59.05.1472<br>59.06.0683<br>59.26.2100                             | 33 pF<br>2.2 uF<br>2 nF<br>220 pF<br>390 pF<br>10 uF<br>4.7 nF<br>68 nF<br>10 uF                                  | 54, NISO Cer<br>54 637 MPC<br>18, 637 PP<br>18, 637 PP<br>18, 637 PP<br>18, 637 PP<br>104, 637 PPT<br>104, 637 PPT<br>204, 167 Sal   | Ph<br>Ph   | R 42<br>R 43<br>R 44<br>R 45<br>R 46<br>R 47<br>R 48<br>R 49<br>R 50          | 57.11.4273<br>57.11.4102<br>57.11.4391<br>57.11.3911<br>57.11.4102<br>57.11.4104<br>57.11.3122<br>57.11.3272               | 27 kOhm<br>1 kOhm<br>390 Ohm<br>910 Ohm<br>1 kOhm<br>27 kOhm<br>100 kOhm<br>1.2 kOhm<br>2.7 kOhm<br>680 Ohm | 54<br>24, See note 2<br>14, See note 2<br>15, 54<br>54<br>54<br>11, 11  |
| C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40                 | 59.06.0683<br>59.18.0108<br>59.99.0401<br>59.99.0401<br>59.05.1332<br>59.26.2100<br>59.22.3221<br>59.34.2220<br>59.34.2220<br>59.05.1223<br>59.05.1103 | 68 nF<br>40 pF<br>47 uF<br>47 uF<br>3.3 nF<br>10 uF<br>220 uF<br>22 pF<br>22 pF<br>22 pF<br>22 nF<br>10 nF        | Trimmer capacitor, Philip; -204, 164 , El bipolar -204, 167 , El bipolar -204, 167 , El bipolar -18, 637 , PP -204, 107 , El -54, NISO , Cer -18, 637 , PP -18, 637 , PP -18, 637 , PP | s Nr 2222.808.32409  | R52<br>R53<br>R54<br>R55<br>R56<br>R57<br>R58<br>R59<br>R60                   | 57.11.4273<br>57.11.4153<br>57.11.4194<br>57.11.5155<br>57.11.4472<br>57.11.4273<br>57.11.4273<br>57.11.4682<br>57.11.4102 | 27 kOhm<br>15 kOhm<br>390 kOhm<br>1.5 MOhm<br>4.7 kOhm<br>27 kOhm<br>120 Ohm<br>6.8 kOhm<br>1 kOhm          | 120<br>54<br>55<br>55<br>56<br>57<br>27<br>28<br>28<br>56<br>56   |
| C41<br>C42<br>C43<br>C44                                    | 59.26.2100<br>59.34.2220<br>59.06.5105<br>59.06.0104   | 10 uF<br>22 pF<br>1 uF<br>0.1 uF  | -204, 16V , Sal<br>54, N150 , Cer<br>54, 50V , PETP<br>104, 50V , PETP   | Ph   | R62<br>R63<br>R64<br>R65<br>R66<br>R66  | 57.11.4470<br>57.11.3152<br>57.11.4472<br>57.11.5106<br>57.11.4222<br>57.11.402  | 47 OAm<br>1.5 kOhm<br>4.7 kOhm<br>10 MOhm<br>2.2 kOhm<br>1.0 kOhm   | 54<br>14<br>54<br>54<br>54<br>54  |
| D2<br>03<br>04<br>05  | 50.04.0125<br>50.04.0512<br>50.04.0125<br>50.04.0125<br>50.04.1121   | IN 4448<br>IN 5818<br>IN 4448<br>IN 4448<br>24 Y  | 1M5819<br>54 0.4W  | Xot  | Note 1 - Cont<br>Brid   | act pin: Stude<br>ge: Stude  | r 54.01.0020,<br>ir 54.01.0021,   | Berg 75 160-102-36<br>Philips 2422 024 88003<br>pt 1.820.711.00.<br>5 d8 higher Gain of   |
| IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8 IC9                         | \$0,05,0283<br>\$0,07,0004<br>\$0,11,0106<br>\$0,11,0106<br>\$0,11,0106<br>\$0,09,0106<br>\$0,07,0005<br>\$0,05,0283<br>\$0,05,0283                    | LM393N<br>CD4556B<br>SD 214 DE<br>SD 214 DE<br>SD 214 DE<br>SD 214 DE<br>NE5532AN<br>AD7554JN<br>LM393N<br>LM393N | MC 14 5568, 45568<br>BSD 214<br>BSD 214<br>BSD 214<br>BSD 214<br>BSD 214<br>RSD 214<br>RSD 214<br>RSD 214<br>RSD 214<br>RSD 214<br>RSD 214<br>RSD 214<br>RSD 214                       | MS, T.I RCA, Mot. Fc Ph., Six Ph., Six Ph., Six Ph., Six Sig. Ex., Ra ADI, MpS MS, TI MS, TI |   | PETP=Polyeste<br>PS=Polystyro<br>MPC=Metalized   | erfilm, Sal=So<br>I, PP=Polyprop<br>I Polycarbonat  | olid-Aluminium, Cer-Germic tylen, El-Electrolytic de u-Esar, Forfairchild, eer Semiconductors, , Ph-Philips, Ra-Raytheon, , SierSiemens, SigrSignetics, een, Tho-CSF-Thomson Semiconductor, |
| IC11<br>IC12<br>IC13<br>IC14<br>IC15<br>IC16                | 50.07.0002<br>50.09.0105<br>50.07.0002<br>50.09.0106<br>50.09.0106<br>50.07.0002   | AD7524JM<br>NE5532M<br>AD7524JM<br>NE5532AM<br>NES532AM<br>AD7524JM   | MP 7524 JM<br>XR 5532 N, 5532 MB<br>MP 7524 JM<br>XR 5532AN, 5532ANB<br>XR 5532AN, 5532AMB<br>MP 7524 JM   | AOI, MpS<br>Sig.Ex.Ra<br>ADI MpS<br>Sig.Ex.Ra<br>Sig.Ex.Ra<br>AOI, MpS                       |   | II-IAYES INZ   | PLIFIER LF 1.8  | 520.711.00 see note 2.  |
| Js1<br>L1   | 00.00.0000<br>62.01.0128   | 1 =#  | See note 1<br>Governde Nr. 17-104, Delevi  | nn Nr. 1641-105  | •   |  |   |   |
| Q1<br>Q2<br>Q3<br>Q4  | 62.01.0128<br>50.03.0407<br>50.03.0516<br>50.03.0216<br>50.03.0407   | 1 mH<br>BC550C<br>BC337<br>J 111<br>BC550C  | Gomanda Mr. 17-104, Delevi<br>Gomanda Mr. 17-104, Delevi   | an Mr. 1641-105<br>Sie,Ph<br>Sie<br>Six<br>Sie,Ph  |   |  |   |   |
| R   | 57.11.4470<br>57.11.4473<br>57.11.3134<br>57.11.4184<br>57.11.4223<br>57.11.4104<br>57.11.4106<br>57.11.4334<br>57.11.4103<br>57.11.4103               | 47 Ohm 47 k0hm 130 k0hm 180 k0hm 22 k0hm 100 k0hm 10 M0hm 330 k0hm 10 k0hm 10 k0hm                                | 54<br>54<br>24<br>24<br>54<br>54<br>54<br>54<br>54<br>54   |  |   |  |   |   |
| R   | 57.11.4335<br>57.11.4103<br>57.11.4103<br>57.11.4563<br>57.11.4562<br>57.11.3513<br>57.11.4103<br>57.11.4103<br>57.11.4470<br>57.11.4102               | 3.3 MOhm<br>1 MOhm<br>10 kOhm<br>56 kOhm<br>4.7 kOhm<br>51 kOhm<br>10 kOhm<br>10 kOhm<br>1 kOhm<br>1 kOhm         | 24<br>54<br>25<br>54<br>15<br>54<br>15<br>54<br>54<br>54<br>54   |  |   |  |   |   |
| R21<br>R22  | 57.11.4104<br>57.11.3432   | 100 kOhe<br>4.3 kOhe  | 24   |  |   |  |   |   |

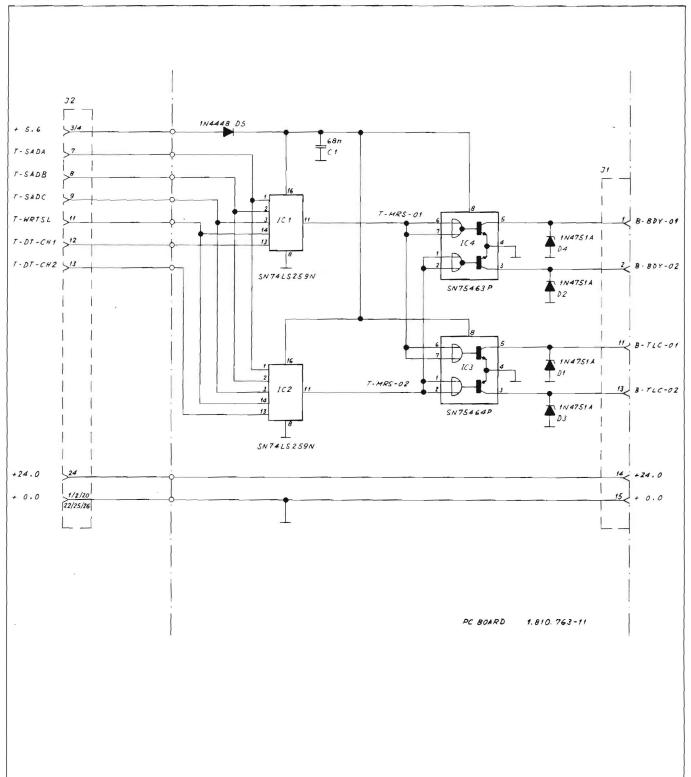


#### REPRODUCE AMPLIFIER 1.820.710.85



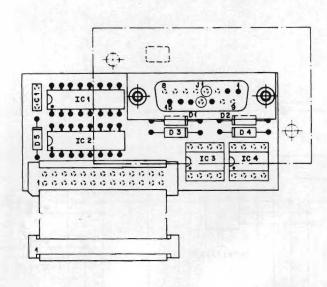


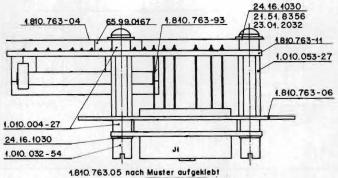
### NOISE REDUCTION SYSTEM CONTROL 1.810.763.82



| 22.04.83 | Buchegger   | A 840 Logic Section |         |    |              |      |   |     |
|----------|-------------|---------------------|---------|----|--------------|------|---|-----|
| STUDER   | Noise Reduc | tion System         | Control | SC | 1.810.763.82 | PAGE | 1 | of1 |

### NOISE REDUCTION SYSTEM CONTROL 1.810.763.82





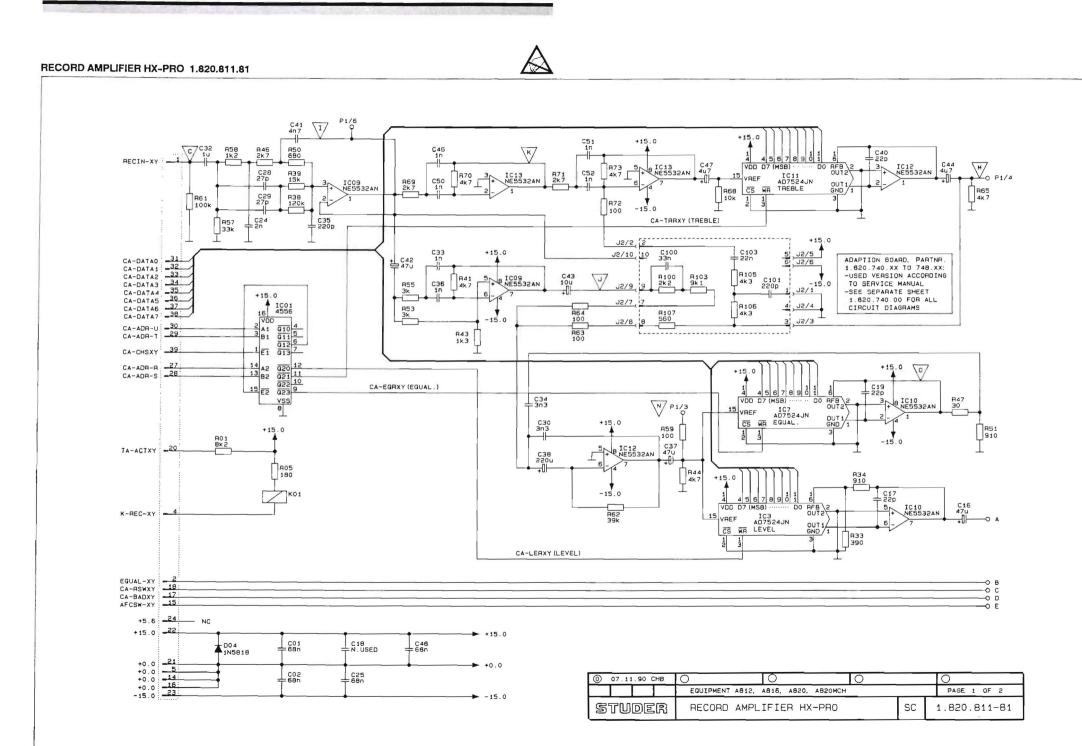
| MANUFACTURE           |  | ION        | CRIPT | DES    | REF.No       | P0S        | Ad  |
|-----------------------|--|------------|-------|--------|--------------|------------|-----|
|                       | Ce   | -20%,      | nF    | 68     | 59.99.0205   | c1         |     |
| ITT, Mot, Ph, Tf, The | 30   | BZX 85-0   | Z     | 30 V   | 50.04.1506   | D1         |     |
| ITT. Mot. Ph. Tf. The | 30   | BZX 85-0   | Z     | 30 V   | 50.04.1506   | D2         |     |
| ITT.Mot.Ph.Tf.The     | 30   | BZX 85-0   | Z     | 30 Y   | 50.04.1506   | D3         |     |
| 1TT. Mot. Ph. Tf. The | 30   | BZX 85-0   | 2     | 30 V   | 50.04.1506   | D4         |     |
| Fc, 1TT, Ph, Ses, Ti  |  |            | 48    | 1844   | 50.04.0125   | D5         |     |
| Fc.Mot.T              | 9 PC   | 74 LS 25   | 259N  | SN74LS | 50.06.0259   | IC1        |     |
| Fc.Mot.TI             | 9 PC   | 74 LS 25   | 259N  | SN74LS | 50.06.0259   | IC2        |     |
| NS.T                  | Witness of the Control of the Contro | DS 75464   | 64P   | SN754  | 50.05.0204   | 1C3        |     |
|                       | JG, SN 55463   | SN 75463   | 63P   | SN754  | 50.05.0203   | IC4        |     |
|                       | 1  | See note   | nt.   | 15 cc  | 54.02.0183   | J1         |     |
|                       | 2  | See note   | mt.   | 26 cc  | 54.14.5022   | J2         |     |
|                       | (Cannon)   | DA-15 S    |       | TRM No |              | e 1 - Jack | Not |
|                       | 7  | . FAS-26-1 | hi Ar | Yamai  |              | a 2 - Jack | Not |
|                       | D-7P   | FRS-26 B   | Mr.   | Burndy |              |            |     |
|                       | 9.00   | 1.810.74   | Nr.   | Studen | ction cable: | Conne      |     |

Ce-Ceramic

NAMUFACTURER: Fc=Fairchild, ITT=Intermetall, Mot=Motorola, MS=Mational Semiconductor, Ph=Philips, Ses=Sescosem, Tf=Telefunken, Tho=Thomson, Ti=Texas Instruments.

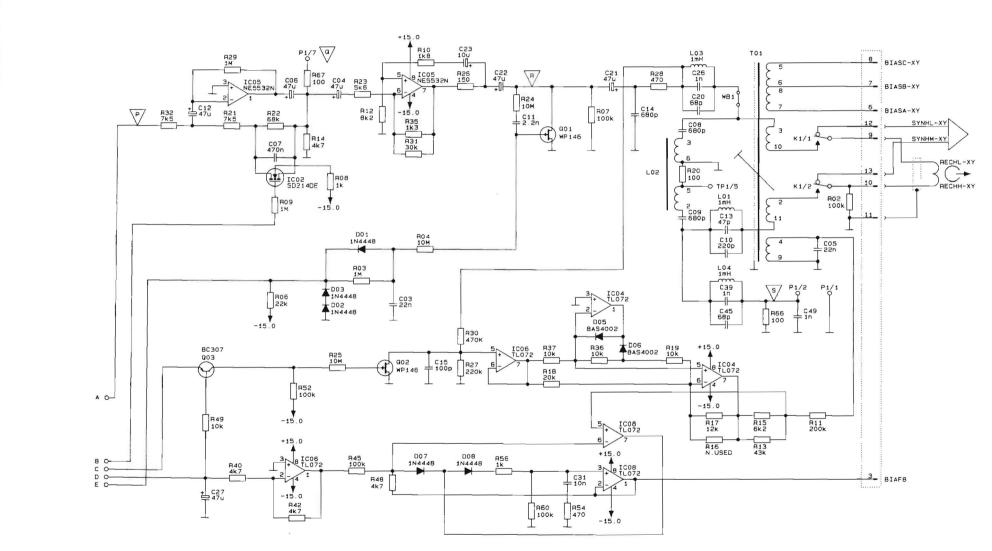
1.810.763.82 NRS CONTROL BOARD

BD 88/05/0400



#### RECORD AMPLIFIER HX-PRO 1.820.811.81





| ① 07.11.90 CHB | 0 0                                 | 0            | 0           |
|----------------|-------------------------------------|--------------|-------------|
|                | EQUIPMENT A812, A816, A820, A820MCH |              | PAGE 2 OF 2 |
| STUDER         | SC                                  | 1.820.811-81 |             |



#### RECORD AMPLIFIER HX-PRO 1.820.811.81

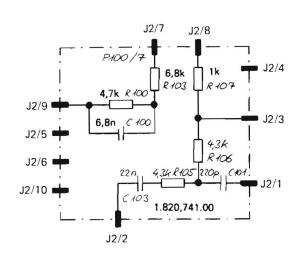
|  | Ad POS   | REF.No   | OESCRIPT  | ON  |
|--|--|--|---|---|
|  | A1   | 00.00.0000   | see note 1  | Adaptation Board  |
|  | C1<br>C2<br>C3<br>C4<br>C5<br>C6<br>C7<br>C8<br>C9                 | 59.06.0683<br>59.06.0683<br>59.05.1223<br>59.26.0470<br>59.12.9222<br>59.26.0470<br>59.06.5474<br>59.05.1681<br>59.05.1681               | 68 nf<br>68 nf<br>22 nf<br>47 uf<br>2.2 nf<br>47 uf<br>470 nf<br>680 pf<br>680 pf<br>220 pf                         | 204, PETP<br>204, PETP<br>204, 6.3 Y, Sal<br>204, 6.3 Y, Sal<br>204, 6.3 Y, Sal<br>54, PETP<br>14, PP<br>14, PP<br>14, PP                           |
|  | C11<br>C12<br>C13<br>C14<br>C15<br>C16<br>C17<br>C18<br>C19<br>C20 | 59.06.0222<br>59.26.0470<br>59.34.2470<br>59.05.1681<br>59.05.105<br>59.26.0470<br>59.34.2220<br>00.00.0000<br>59.34.2220<br>59.34.4680  | 2.2 nf<br>47 uf<br>47 pf<br>680 pf<br>100 pf<br>47 uf<br>22 pf<br>not used<br>22 pf<br>68 pf                        | 10%, PETP 20%, 6.3 Y, Sal 5%, Cer 1%, PP 1%, PP 20%, 6.3 Y, Sal 5%, Cer 5%, Cer 5%, Cer 5%, Cer   |
| 43 01 0108 53 03 0168 (4x) 53 03 0166 (8x)  28 21 1370  (3x)   | C21<br>C22<br>C23<br>C24<br>C25<br>C26<br>C27<br>C28<br>C29<br>C30 | 59.26.0470<br>59.26.0470<br>59.26.2100<br>59.12.7202<br>59.06.0681<br>59.05.1102<br>59.26.0470<br>59.34.2270<br>59.34.2270<br>59.05.1332 | 47 uF<br>47 uF<br>10 uf<br>2 nF<br>68 nf<br>1 nF<br>47 uF<br>27 pF<br>27 pF<br>3.3 nF                               | 204, 6.3 Y, Sal<br>204, 6.5 Y, Sal<br>204, 16 Y, Sal<br>114, PS<br>204, PS<br>204, PET<br>120, PP<br>204, 6.3 Y, Sal<br>Ss, Car<br>Ss, PP           |
| 000 000 000 000 000 000 000 000 000 00   | C31<br>C32<br>C33<br>C34<br>C35<br>C36<br>C37<br>C38<br>C39<br>C39 | 59.06.5103<br>59.06.5105<br>59.05.1102<br>59.05.1322<br>59.05.1221<br>59.05.1102<br>59.26.0470<br>59.22.3221<br>59.05.1102<br>59.34.2220 | 10 nf<br>1 uf<br>1 nf<br>3.3 nf<br>220 pf<br>1 nf<br>47 uf<br>220 uf<br>1 nf<br>22 pf                               | 5%, PETP<br>5%, PETP<br>1%, PP<br>1%, PP<br>1%, PP<br>1%, PP<br>1%, PP<br>20%, 6.3 Y Sal<br>20%, 10 Y, El<br>1%, PP<br>5%, Cer                      |
| H H H H C 3 C 14 T W W C 22 3 +  | C41<br>C42<br>C43<br>C44<br>C45<br>C46<br>C47<br>C48<br>C49<br>C50 | 59.05.1472<br>59.26.0470<br>59.26.5479<br>59.26.5479<br>59.34.4680<br>59.05.1102<br>59.26.5479<br>59.06.0683<br>59.05.1102               | 4.7 nF<br>47 uF<br>10 uF<br>4.7 uF<br>68 pF<br>1 nF<br>4.7 uF<br>68 nF<br>1 nF<br>1 nF                              | 1k, pp<br>20k, 6.3 k, Sal<br>20k, 16 k, Sal<br>20k, Sal<br>5k, Cer<br>1k, pp<br>20k, Sal<br>20k, PTP<br>1k, pp                                      |
| RECORD AMPL<br>1   | C51<br>C52<br>D1<br>D2<br>D3<br>O4<br>O5<br>O6<br>D7<br>D8         | 59.05.1102<br>59.05.1102<br>50.04.0125<br>50.04.0125<br>50.04.0125<br>50.04.0127<br>50.04.0127<br>50.04.0127<br>50.04.0125<br>50.04.0125 | 1 nF<br>1 nF<br>1 M4448<br>1M4448<br>1M5818<br>BAT 42<br>BAT 42<br>1M4448<br>1M4448                                 | 1%, PP<br>1%, PP<br>IM5619<br>BAT 85, BAS 40-02<br>BAT 85, BAS 40-02<br>Ph  |
| 1.5 × 2.5 Lotstellenhohe  1.5 × 2.5 Lotstellenhohe | IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8 IC9 IC10                           | 50.07.0004   | NC 14556BCP<br>SD 214 DE<br>A07524JN<br>TL072CP<br>NE5532N<br>TL072CP<br>A07524JN<br>TL072CP<br>NE5532AN<br>NE5532N | CD4556BE, 4556B PC<br>850214<br>MP7524UN<br>LF 151 M<br>XB5327M, 5532MB<br>LF 151 M<br>NP7524UN<br>LF 351 M<br>XB5327M, 5532ANB<br>XB5322M, 5532ANB |
| * gelber Punkt   | IC12<br>IC12<br>IC13   | 50.07.0002<br>50.09.0106<br>50.09.0106   | AD7524JM<br>NE5532AN<br>NE5532AN  | MP7524JM<br>XR5532AN, 5532ANB<br>XR5532AN, 5532ANB  |
|  | J1<br>K1   | 54.01.0307<br>56.04.0171   | 10 cont.  | AMP Mr. 163.683-8   |
|  | L1   | 62.01.0128<br>1.022.214.00<br>62.01.0128<br>62.01.0128   | 1 mH<br>1 mH<br>1 mH  | Gowanda 16-104 or Delevan 2307-<br>Filter coil, 150 kHz<br>Gowanda 16-104 or Delevan 2307-<br>Gowanda 16-104 or Delevan 2307-                       |
|  |  |  |   |   |

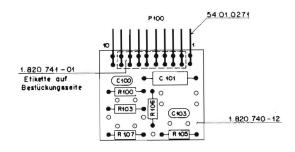
| Ad POS     | REF.No                                 | OESCRIPT                         | TON  | MAMUFACTURER                         | Ad POS                        | REF.Mo                                 | OESCRIPT                       | TON  | UFACTURER        |
|------------|--|----------------------------------|--|--------------------------------------|-------------------------------|--|--------------------------------|--|------------------|
| A1         | 00.00.0000                             | see note 1                       | Adaptation Board   | S                                    | P1                            | 54.12.0007                             | 7 cont.                        | AMP Mins Match System, Nr. 164 713   | 1-7              |
| C1         | 59.06.0683                             | 68 nf                            | 204. PETP<br>204. PETP   |                                      | Q1<br>Q2                      | 50.03.0329<br>50.03.0329               | P1228E<br>P1228E               | WP146<br>WP146   | Six,TS<br>Six,TS |
| C3         | 59.06.0683<br>59.05.1223<br>59.26.0470 | 68 nF<br>22 nF<br>47 uF          | 14, PP   | Ph                                   | Q3                            | 50.03.0515                             | BC 307                         |  | IT.Mot.Ph        |
| C5         | 59.12.9222                             | 2.2 nF                           | 20%, PLIP<br>1%, PP<br>20%, 6.3 Y, Sal<br>1%, 500 Y, PS<br>20%, 6.3 Y, Sal | Ph                                   | R1                            | 57.11.4822                             | 8.2 kOhm                       | 54<br>54   |                  |
| C7         | 59.26.0470<br>59.06.5474<br>59.05.1681 | 47 uf<br>470 nf                  |  | Ph                                   | R2<br>R3                      | 57.11.4104<br>57.11.4105               | 100 k0hm<br>1 M0hm             | SX:  |                  |
| C8         | 59.05.1681<br>59.05.1681               | 680 pf<br>680 pf                 | 1%, PP<br>1%, PP   |                                      | R5                            | 57.11.5106<br>57.11.4181               | 10 MChm<br>180 Chm             | 10%<br>54r   |                  |
| c10        | 59.05.1221                             | 220 pF                           | 14. PP   |                                      | R6<br>R7                      | 57.11.4223<br>57.11.4104               | 22 kOhm<br>100 kOhm            | 54<br>54   |                  |
| c11        | 59.06.0222<br>59.26.0470               | 2.2 nF<br>47 uF                  | 10%, PETP<br>20%, 6.3 Y, Sal   | Ph                                   | R8                            | 57.11.4102<br>57.11.4105               | 1 kOhm<br>1 MOhm               | 54<br>104  |                  |
| C12<br>C13 | 59.34.2470                             | 47 pf                            | Sk, Cer  | ×n.                                  | R9<br>R10                     | 57.11.4182                             | 1.8 kOhe                       | 24   |                  |
| C14<br>C15 | 59.05.1681<br>59.05.1101               | 680 pf<br>100 pF                 | 14. PP   |                                      | R11                           | 57.11.3204                             | 200 koha                       | I¥   |                  |
| C16<br>C17 | 59.26.0470                             | 47 uf<br>22 pf                   | 20%, 6.3 Y, Sal<br>5%, Cer   | Ph                                   | R12<br>R13                    | 57.11.4827<br>57.11.3433<br>57.11.4472 | 8.2 tOhm<br>43 kOhm            | 24<br>24   |                  |
| C18<br>C19 | 59.34.2220<br>00.00.0000<br>59.34.2220 | not used<br>22 pf                | 54. Cer  |                                      | R14<br>R15                    | 57.11.4472<br>57.11.3622               | 4.7 k0hm<br>6.2 k0hm           | 54<br>14   |                  |
| C20        | 59.34.4680                             | 68 pf                            | Sk, Cer  |                                      | R16                           | 00.00.0000                             | not used                       | 18:  |                  |
| C21        | 59.26.0470<br>59.26.0470               | 47 uF                            | 204, 6.3 Y, Sal  | Ph<br>Ph                             | R17<br>R18                    | 57.11.3123<br>57.11.3203               | 20 kOhm                        | 14   |                  |
| C22        | 59.26.2100                             | 47 uF<br>10 uf                   | 204, 6.3 V, Sal<br>204, 6.3 V, Sal<br>204, 16 V, Sal                       | Ph<br>Ph                             | R20                           | 57.11.4103<br>57.11.4101               | 10 k0hm<br>100 Ohm             | 24<br>24   |                  |
| C24<br>C25 | 59.12.7202<br>59.06.0683               | 2 nF<br>68 nF                    | 1%, PS<br>20%, PETP  |                                      | R21                           | 57.11.3752                             | 7.5 kOhm                       | 14   |                  |
| C26<br>C27 | 59.05.1102                             | A7 uf                            |  | Ph                                   | R22<br>R23                    | 57.11.3683<br>57.11.3562               | 5.6 kOhm                       | 1k<br>1k   |                  |
| C28<br>C29 | 59.26.0470<br>59.34.2270<br>59.34.2270 | 27 pf<br>27 pf                   | 204, 6.3 V, Sal<br>S4. Cer<br>S4, Cer                                      | 2.0                                  | R24<br>R25                    | 57.11.5106<br>57.11.5106               | 10 MOhm<br>10 MOhm             | 10%<br>10%   |                  |
| c30        | 59.05.1332                             | 3.3 nf                           | 14, PP   |                                      | R26                           | 57.11.4151                             | 150 Ohm<br>220 kOhm            | 24<br>14   |                  |
| C31        | 59.06.5103                             | 10 nF                            | S4. PETP   |                                      | R27<br>R28                    | 57.11.3224<br>57.11.4471<br>57.11.4105 | 470 Ohm                        | 24<br>54   |                  |
| C32        | 59.06.5105<br>59.05.1102               | 1 uF<br>1 nF                     | 54. PETP<br>14. PP   |                                      | R29<br>R30                    | 57.11.4105<br>57.11.4474               | 1 MOhe<br>470 kOha             | 54<br>24   |                  |
| C34<br>C35 | 59.05.1332<br>59.05.1221               | 3.3 nf<br>220 pf                 | 1%. PP   |                                      | R31                           | 57.11.3303                             | 30 kOhm                        | 54   |                  |
| C36<br>C37 | 59.05.1102<br>59.26.0470               | 1 nf<br>47 uf                    | 14. PP<br>204. 6.3 V Sal   | Ph                                   | R32<br>R33                    | 57.11.3752<br>57.11.3391               | 7.5 kOhm<br>390 Ohm            | 14<br>14   |                  |
| C38<br>C39 | 59.22.3221<br>59.05.1102               | 220 uf<br>1 nF                   | 20%, 10 V, E1  |                                      | R34<br>R35                    | 57.11.3911<br>57.11.3132               | 390 Ohm<br>910 Ohm<br>1.3 kOhm | 14<br>14   |                  |
| C40        | 59.34.2220                             | 22 pF                            | St. Cer  |                                      | R36                           | 57.11.4103                             | 10 kOhe                        | 24   |                  |
|            |  |                                  |  |                                      | R37<br>R38                    | 57.11.4103<br>57.11.4124<br>57.11.4153 | 10 kOhm<br>120 kOhm            | 24<br>54   |                  |
| C41        | 59.05.1472<br>59.26.0470               | 4.7 nF<br>47 uF                  | 1%, PP<br>20%, 6.3 %, Sal  | Ph                                   | R40                           | 57.11.4153<br>57.11.3472               | 15 kOhm<br>4.7 kOhm            | 24<br>14   |                  |
| C43        | 59.26.2100<br>59.26.5479               | 10 uF<br>4.7 uF                  | 204, 16 V, Sal<br>204, Sal   | Ph<br>Ph                             | R41                           |  | 4.7 kOhm                       | 14   |                  |
| C45<br>C46 | 59.34.4680<br>59.05.1102               | 68 pf<br>1 nf                    | 54. Cer<br>14. PP  |                                      | R42<br>R43                    | 57.11.3472<br>57.11.3472<br>57.11.3132 | 4.7 kOhm<br>1.3 kOhm           | 14   |                  |
| C47<br>C48 | 59.26.5479                             | 4.7 uf<br>68 nF                  | 204, Sal<br>204, PETP  | Ph                                   | R44<br>R45                    | 57.11.4472<br>57.11.4104               | 4.7 kOhm<br>100 kOhm           | 54<br>24   |                  |
| C49<br>C50 | 59.06.0683<br>59.05.1102<br>59.05.1102 | 1 nF<br>1 nF                     | 1%, PP<br>1%, PP   |                                      | R46                           | 57.11.3272<br>57.11.3300<br>57.11.3472 | 2.7 kOhe<br>30 Ohe             | 24<br>1k   |                  |
|            |  |                                  |  |                                      | R47<br>R48                    | 57.11.3472                             | 4.7 kOhm                       | 14   |                  |
| C51<br>C52 | 59.05.1102<br>59.05.1102               | 1 nF<br>1 nF                     | 14. PP<br>14, PP   |                                      | R50                           | 57.11.4103<br>57.11.4681               | 10 k0hm<br>680 0hm             | 54<br>24   |                  |
| 01         | 50.04.0125                             | 1M4448<br>1M4448                 |  | ITT, Ph. Ses. TI                     | R51                           | 57.11.3911                             | 910 Ohm                        | 18   |                  |
| D2         | 50.04.0125<br>50.04.0125               | 1M4448                           |  | ITT, Ph. Ses, TI<br>ITT, Ph. Ses, TI | R52<br>R53                    | 57.11.4104<br>57.11.3302               | 100 k0he<br>3 k0he             | 14   |                  |
| 05         | 50.04.0512<br>50.04.0127               | 1#5818<br>BAT 42<br>BAT 42       | INS819<br>BAT 85, BAS 40-02<br>BAT 85, BAS 40-02                           | Ph, Sie, Tho-CSF                     | R54<br>R55                    | 57.11.4471<br>57.11.3302<br>57.11.4102 | 470 Ohm<br>3 kOhm<br>1 kOhm    | 54<br>14<br>54   |                  |
| 07         | 50.04.0127<br>50.04.0125               | 1N4448                           | BAT 85, BAS 40-02  | Ph.Sie,Tho-CSF<br>ITT,Ph.Ses.TI      | R56<br>R57                    | 57.11.4333                             | 1 kOhe<br>33 kOhe              | 54   |                  |
| D8         | 50.04.0125                             | 184448                           |  | ITT,Ph.Ses.Tl                        | R58<br>R59                    | 57.11.4122<br>57.11.4101               | 1.2 k0hm<br>100 0hm            | 24<br>54   |                  |
| IC2        | 50.07.0004<br>50.11.0106               | MC14556BCP                       | CO4556BE, 4556B PC<br>BSO214   | Mot.RCA,Fc<br>Six.Ph                 | R60                           | 57.11.4104                             | 100 k0hm                       | 54   |                  |
| IC3<br>IC4 | 50.07.0002<br>50.09.0101               | SD 214 DE<br>A07524JH<br>TL072CP | MP7524JN<br>LF 353 M   | ADI, Mos<br>MS, TI, Tho              | R61                           | 57.11.4104<br>57.11.4393               | 100 k0he<br>39 k0he            | 54<br>21   |                  |
| IC5        | 50.09.0105                             | NE553ZN                          | XR5532M, 5532MB  | Sig, Ex, Ra                          | R62<br>R63                    | 57.11.4101                             | 100 Ohe<br>100 Ohe             | 54   |                  |
| IC6        | 50.09.0101<br>50.07.0002               | TLO7ZCP<br>AD75Z4JM              | LF 353 M<br>MP7524JN   | MS.TI.Tho<br>ADI.MpS<br>MS.TI.Tho    | R65                           | 57.11.4101<br>57.11.4472<br>57.11.4101 |                                | 54<br>54   |                  |
| IC8<br>IC9 | 50.09.0101<br>50.09.0106               | TLO72CP<br>ME5532AH              | LF 353 N<br>XR5532AN, 5532ANB  | Sig, Ex, Ra                          | R66<br>R67                    | 57.11.4101                             | 100 Ohe<br>100 Ohe             | 24<br>54   |                  |
| IC10       | 50.09.0105                             | NE5532N                          | XR5532M, 5532MB  | Sig,Ex,Ra                            | R68<br>R69                    | 57.11.4103<br>57.11.3272<br>57.11.3472 | 10 k0hm<br>2.7 k0hm            | 54<br>14   |                  |
| IC11       | 50.07.0002<br>50.09.0106               | AD7524JM<br>NE5532AN             | MP7524JM<br>XR5532AN, 5532ANB  | ADI.MpS<br>Sig.Ex,Ra                 | R70                           | 57.11.3472                             | 4.7 kOhm                       | 14   |                  |
| IC13       | 50.09.0106                             | NE5532AM                         | XR5532AN, 5532ANB  | Sig, Ex, Ra                          | R71<br>R72                    | 57.11.3272<br>57.11.4101               | 2.7 k0hm<br>100 0hm            | 1k<br>5k   |                  |
| J1         | 54.01.0307                             | 10 cont.                         | AMP Nr. 163.683-8  |                                      | R73                           | 57.11.3472                             | 4.7 kOhm                       | 14   |                  |
| ĸ1         | 56.04.0171                             | SM 01012                         |  | (TT                                  |                               | 1.022.213.00                           |                                | Bias Transformer, 150 kHz  | St               |
| L2         | 62.01.0128<br>1.022.214.00             | 1 mH                             | Gowanda 16-104 or Deleva<br>Filter coil, 150 kHz                           |                                      | Mote 1: Actua<br>up te        | 1.820.748.00                           | tation Board<br>) according    | (Studer mr. 1.820.740.00<br>to Service Menuel.   |                  |
| L4         | 62.01.0128<br>62.01.0128               | 1 mH<br>1 mH                     | Gowanda 16-104 or Deleva<br>Gowanda 16-104 or Deleva                       | 2307-105                             | Cer=Ceramic.<br>Sal=Solid ale | PETP=Polyester<br>minium               | r. PP=Polypr                   | opylen, PS=Polystyrol,   |                  |
|            |  |                                  |  |                                      | MANUFACTURER:                 | ADI-Analog De                          | evices Inc.,                   | Ex-Euer, fc-Fairchild,   |                  |
|            |  |                                  |  |                                      |                               | MpS-Micropowe                          | ill, Mot-Mot<br>er Semicondu   | orola,<br>ctors, Ph=Philips, Ra=Raytheon,  |                  |
|            |  |                                  |  |                                      |                               | RCA-Radio Con<br>St-Studer. Si         | rp. of Ameri                   | orola,<br>ctors, Ph=Philips, Ra=Raytheon,<br>ca, Ses=Sescosem, Sig=Signetics,<br>, TS=Teledyne Semiconductors, |                  |
|            |  |                                  |  |                                      |                               | T[=Texas Inst                          | truments.                      |  |                  |
|            |  |                                  |  |                                      |                               |  |                                |  |                  |

1.820.811.81 RECORD AMP NX PRO

80 87/08/2800

#### ADAPTION BOARD 1.820.741.00 FOR 1.318... HEADS

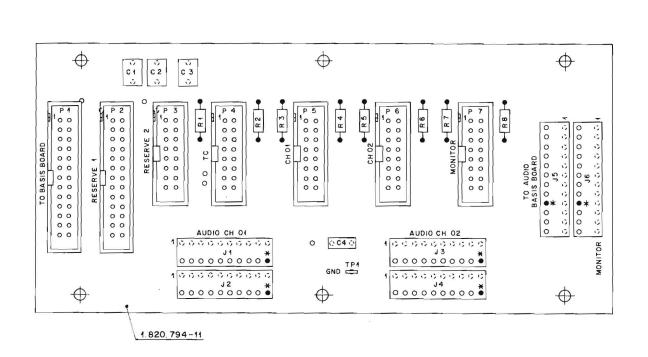




|         | DESCRIPT  | REF.No  | ,,,,,,,  | Ad_   |
|---------|---|---|--|---|
| 54r     | 6.8 nf  | 59.06.5682  | C100   |   |
| 54      | 220 pf  | 59.04.8221  | C101   |   |
|         | not used  |   |  |   |
| 5¥r     | 22 nf   | 59.06.5223  | C103   |   |
|         | not used  |   | C104   |   |
|         | not used  |   | C105   |   |
| AMP-Nr. | 10 cont.  | 54.01.0271  | P100   |   |
| 2%      | 4.7 kOhm  | 57.11.4472  | R100   |   |
|         | not used  |   | R101   |   |
|         | not used  |   | R102   |   |
| 24      | 6.8 k0hm  | 57.11.4682  | R103   |   |
|         | not used  |   | R104   |   |
| 14      | 4.3 kOhm  | 57.11.3432  | R105   |   |
| 14      | 4.3 kOhm  | 57.11.3432  | R106   |   |
| 24      | 1.0 k0hm  | 57.11.4102  | R107   |   |
| BOARD   | ADAPTATION  | 1.820.741.00  |  |   |
|         | 54<br>54<br>AMP-Nr.<br>24<br>24<br>14<br>14<br>24 | 220 pF not used 22 nF not used 6.8 kOhm 24 not used 4.3 kOhm 14 1.0 kOhm 25 | 59.04.8221 220 pf not used 55.06.5223 22 nf St not used not used AMP-Nr. 57.11.4472 4.7 kOhm not used 57.11.4682 6.8 kOhm 14 2k not used 57.11.3432 4.3 kOhm 14 57.11.3432 4.3 kOhm 14 | C101 59.04.8221 220 pF not used 22 nf not used 22 nf not used 22 nf not used 22 nf not used 23 nf not used 24 not used 25 nf not used 26 not used 27 not used 28 not used 29 not used 2 |

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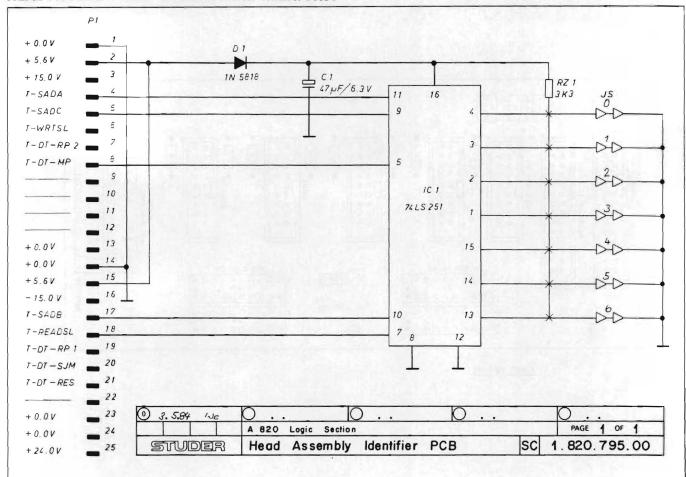
#### **DISTRIBUTION BOARD 1.820.794.81**

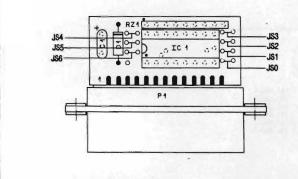


| Ad  | POS     | REF.No       | DESCRIPTION     |                         |
|-----|---------|--------------|-----------------|-------------------------|
|     |         |              |                 |                         |
|     | C1      | 59.06.0474   | 470 nF 1        | OK, SOY, PETP           |
|     | C2      | 59.06.0474   |                 | 04, 50Y, PETP           |
|     | C3      | 59.06.0474   |                 | OV, SOV, PETP           |
|     | C4      | 59.06.0104   | 100 nF 1        | OK, SOY, PETP           |
|     | J1      | 54.01.0290   | 10 cont. C      | IS, AMP Nr. 163.680-9   |
|     | J2      | 54.01.0290   | 10 cont. C      | IS, AMP Nr. 163.680-9   |
|     | J3      | 54.01.0290   |                 | IS, AMP Nr. 163.680-9   |
|     | J4      | 54.01.0290   |                 | IS, AMP Nr. 163.680-9   |
|     | J5      | 54.01.0215   |                 | IS, AMP Nr. 1-163.680-1 |
|     | J6      | 54.01.0215   | 12 cont. C      | IS, AMP Nr. 1-163.680-1 |
|     | P1      | 54.14.2003   | 26 cont. se     | ee note 1               |
|     | P2      | 54.14.2003   | 26 cont. se     | ee note 1               |
|     | P3      | 54.14.2002   |                 | ee note 2               |
|     | P4      | 54.14.2002   |                 | ee note 2               |
|     | P5      | 54.14.2002   |                 | ee note 2               |
|     | P6      | 54.14.2002   |                 | ee note 2               |
|     | P7      | 54.14.2002   | 16 cont. se     | ee note 2               |
|     | R1      | 57.11.3100   | 10 Ohm 10       | 04, 0.25₩               |
|     | R2      | 57.11.3100   |                 | 04, 0.25₩               |
|     | R3      | 57.11.3100   |                 | 04, 0.25 <del>N</del>   |
|     | R4      | 57.11.3100   |                 | 04, 0.25W               |
|     | R5      | 57.11.3100   |                 | 04, 0.25W               |
|     | R6      | 57.11.3100   |                 | D4. 0.25W               |
|     | R7      | 57.11.3100   |                 | DR, 0.25W               |
|     | R8      | 57.11.3100   | 10 Ohm 10       | D¥, 0.25₩               |
|     | TP1     | 29.21.6002   | To              | estpoint                |
| DET | n - n-1 |              |                 |                         |
|     | Polye   |              | 26_DR//A Rused  | y Nr. BPH 9 B 26 BOO GS |
|     |         |              |                 | y Nr. BPH 9 B 16 BOO GS |
|     |         | 1 800 304 61 | DICYDIBUTION B  | 00.01/10/1100           |
|     |         | 1.620./94.81 | DISTRIBUTION BO | DARD GP 91/10/1100      |
|     |         |              |                 |                         |
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EDITION: OKTOBER 1993

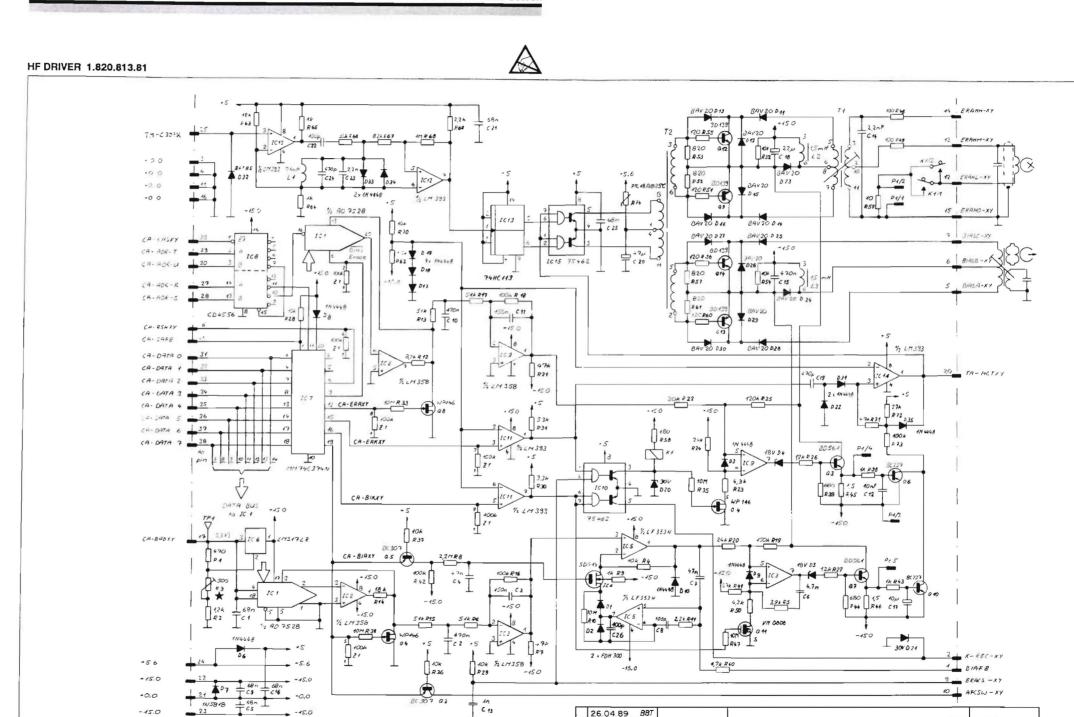
#### **HEAD ASSEMBLY IDENTIFIER BOARD 1.820,795.00**





| AdPOS         | REF.No                       | DESCRIP                    | TION                           | MANUFACTURER |
|---------------|------------------------------|----------------------------|--------------------------------|--------------|
| IC1           | 50.06.0251                   |                            | SN 74 LS 251 N                 | TI           |
| D1            | 50.04.0512                   | 1N 5818                    | 1M 5819,                       | Not          |
| C1            | 59.26.0470                   | 47 uF                      | 204, 6.3V , Sal                | Ph           |
| RZ1           | 57.88.4332                   | 8 *3.3K                    | 54, SINGLE LINE                |              |
| P1            | 54.13.1003                   | D-TYPE                     | 25 POL. LOET                   | ITT,TRM      |
| Sal=Solid alu | minium                       |                            |                                |              |
| Manufacturer: | ITT-Intermet<br>T1-Texas Ins | all, Mot-Mo<br>trument, TR | torola, Ph=Philips, St=Studer, |              |
|               | 1.820.795.00                 | HEAD ASSY                  | IDENTIFIER BOARD WE 84/05/030  | 00           |

| FOR VERSION:            |   |   |   |   |     | ED ( |    |
|-------------------------|---|---|---|---|-----|------|----|
| A820-1, A820-1 VU       | X |   |   |   | Thi |      |    |
| A820-0.75               |   | X |   |   |     |      |    |
| A820-0.75 VU            | X | X |   |   |     |      |    |
| A820-2 F                | X | X | X |   |     |      |    |
| A820-2, A820-2 VU       |   | X | X |   |     |      |    |
| A820-2/2 VU             |   |   | х |   |     |      |    |
| A820-2 TC, A820-2 TC VU | X |   | X |   |     |      | 9  |
| A820-2/2-1/2" VU        | Х | Х |   | Х |     |      |    |
| A820-2/2-1/2" TC VU     |   |   | X | X | 1   | 0    | G. |



★R3 ADJUST FOR 5,3V + 50mV AT TP1

STUDER HF-DRIVER

SC 1.820.813-81

PAGE 1 OF 1



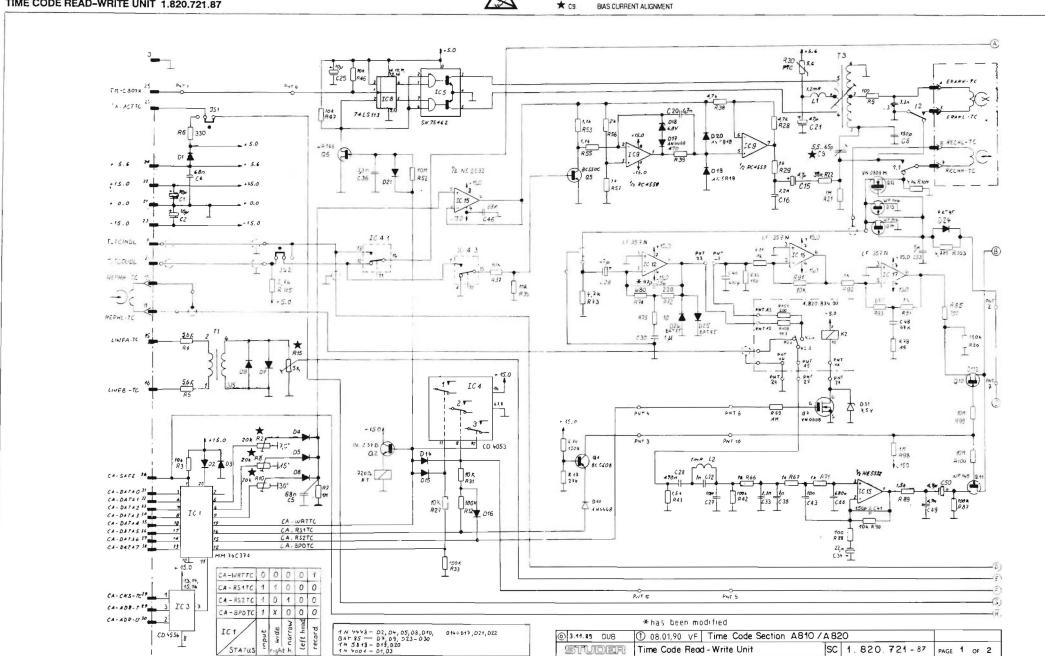
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| 10-1   | 03 0166 C26 ( Lotseite )   | Ad .POSREF.No. DESCRIPTION   | AdPOSREF.NO. DESCRIPTION  |
|--|--|--|---|
| 101  | 28 21 1370 (3x) (3x) (3x) (3x) (3x) (3x) (3x) (3x)   | D  | R 31 57.11.4322 33.10 bm 54 R 32 57.11.4103 10 10 hbs 10% R 33 57.11.5106 10 bbs 10% R 33 57.11.5106 10 bbs 10% R 35 57.11.5106 10 bbs 10% R 35 57.11.5106 10 bbs 10% R 35 57.11.5106 10 bbs 10% R 37 57.11.4101 10 10 bbs 10% R 37 57.11.4102 10 bbs 10% R 38 57.11.4102 10 bbs 10% R 39 57.11.4102 1 bbs 10% R 39 57.11.4402 1 bbs 10% R 30 57.11.4402 1 bbs 2% R 40 57.11.4473 27 bbs 2% R 41 57.11.4273 27 bbs 2% |
| IC to Compliant IC II (Carata Co (OZ)  | 1.040.006-33   | 021         50.04.1125         30 V. Z         8ZX55 C 30         IIT,Mot,Ph,Tf,Tho           022         50.04.0123         BAV20         Fc,IIT,Ph,SetT,Ph           023         50.04.0133         BAV20         ITT,Ph           025         50.04.0133         BAV20         ITT,Ph           025         50.04.0133         BAV20         ITT,Ph           027         50.04.0133         BAV20         ITT,Ph           027         50.04.0133         BAV20         ITT,Ph           028         50.04.0133         BAV20         ITT,Ph           029         50.04.0133         BAV20         ITT,Ph           029         50.04.0133         BAV20         ITT,Ph           030         50.04.0133         BAV20         ITT,Ph   | R   |
| C14  | C17.000 P P P P P P P P P P P P P P P P P P  | D31 50.04.0125 1N4448 Fc,1TT,Ph,Ses,TF D32 50.04.0127 BA1 42 BAT 85, BAS 40-02 Ph,Sie,Tho D33 50.04.0125 1N4448 D34 50.04.0125 1N4448 Fc,1TT,Ph,Ses,TF D35 50.04.0125 1N4448 Fc,1TT,Ph,Ses,TF T. T   | R 51 57, 11, 4121 1220 Obe 54 R 52 57, 11, 4821 820 Obe 54 R 53 57, 11, 4821 820 Obe 54 R 54 57, 11, 4821 820 Obe 154 R 55 57, 11, 4121 120 Obe 104 R 55 57, 11, 4121 120 Obe 54 R 55 57, 11, 4121 120 Obe 54 R 57 57, 11, 4821 820 Obe 54  |
|  | 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | TC2 50.05.0286 LPUSSN LPUSSP Mot.NS.505,11 TC3 50.05.0286 LPUSSN LPUSSP Mot.NS.505,11 TC4 50.11.0106 SD 214-0 E 500 214 TC5 50.09.0101 TL.072 CP TO8 0353 DP Tho.11 TC6 50.10.0108 LPUSSP Tho.11 TC6 50.10.0108 LPUSSP MATCASTAN TC8 50.07.0004 C045568E4556MC145568CP Mot.Ph.RCA.TO   | R58 57.11.4181 180 0hm 5k R59 57.11.4100 10 0hm 2k R60 57.11.4121 120 0hm 5k R61 57.11.4221 820 0hm 5k R61 57.11.4821 820 0hm 5k  |
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 1,010,001-61<br>(3 t)  | CC9   \$60.05.0286   UGSSM   UGSSP   Mot.MS.505.TI   | R 63 57, 11, 4182 1, 18 40he ZV<br>R 64 57, 11, 4102 1, 10he ZV<br>R 65 57, 11, 4102 1, 10he ZV<br>R 65 57, 11, 4102 1, 10he SA<br>R 66 57, 11, 423 33 10he SA<br>R 67 57, 11, 4822 6, 2 60he SA<br>R 68 57, 11, 4105 1, Nohe 10he<br>R 69 57, 11, 4103 10 10he SA  |
| 1,5:2.5 Lötstellenhöhe 1820.813·11 53.03.0167  |  | K1 56.04.0171 SM 01012 1TT L1 1.022.197.00 1.5 ski L2 1.022.197.00 1.5 ski L3 62.02.1910 100 uk 1DK nr. EL 0606 SKI - 101 K  | R71 57.11.4472 4.7 10Ne 54 R72 57.11.4772 4.7 10Ne 54 R73 57.11.4104 100 t0Ne 54 R74 57.92.1151 18 0Ne 6.25 Degrees C, Philips nr. 2322 661 11511 RZ1 57.88.4104 See Mote 2 T1 1.022.212.00 Frasa Transformer, 1501Nz 5t  |
| Bestückungshähe  1.040.427-65  4.010.046-22 qabördeit  21.53.2354  1.040.029-50  (2 x)   |  | P1 54.12.0005 5 cont. AMP Mini Match System, Nr. 164 713-5AMP  01 50.03.0129 MP146 U pinch-off < 4.0 Y  02 50.03.01515 8C 251 8 BC 307 8 BC 557 8 III, Mot, Ph. Meu  03 50.03.0919 MP146 BC 3718 BC 557 8 III, Mot, Ph. Meu  05 50.03.0515 8C 251 8 BC 307 8 BC 557 8 III, Mot, Ph. Meu  05 50.03.0456 BC 237 8 BC 550 8 BC 547 8 III, Mot, Ph. Meu  07 50.03.0493 B0 437 BC 550 8 BC 547 8 III, Mot, Ph. S55, III, Th. Mot, Ph. S51 III, Mot, Ph. S51 | T2 1.022.211.00 Driver Transformer, 150kHz St  TP1 54.02.0320 Test-Pin Lupot-Rr. E184 / 8LE  (01) 87/04/07 Drop-In Improvement (02) 91/05/06 R7 modified to prevent latch-up of IC3.  Note 1 - Potentiometer, 500 Dhm, 104: Bourns nr. 3296 Z - 1 - 501   |
| C1 59.06.0683 6<br>C2 59.06.5474 47<br>C3 59.06.5154 13  | OESCRIPTION  | Q11 50.03.1505 VN 0808 N VN 0808 MT ZYN 0108 A Fe. Six<br>Q12 50.03.0451 80 139-104,4,4 Mot.Ph.SGS.Tf.16<br>Q13 50.03.0451 80 139-104,4,4 Mot.Ph.SGS.Tf.16<br>Q14 50.03.0451 80 139-104,4,4 Mot.Ph.SGS.Tf.17<br>Q14 50.03.0451 80 139-104,4,4 Mot.Ph.SGS.Tf.17<br>P. J. 57.11.4471 470 0bm 2%  | Note 2 - Metwork, 8 * 100 kOhe, 54:   Beckmann r.   L - 09 - 1 - R 100 k  |
| C5 59.06.0683 6<br>C6 59.32.7472 4<br>C7 59.06.5473  | 86 nF 204, PETP<br>7 nF 104, Cer<br>17 nF 54, PETP   | R2 57.11.4122 1.2 follow 2%<br>R3 58.05.0501 500 0ha See Note 1<br>R4 57.11.4103 10 follow 2%<br>R5 57.11.4392 3.9 follow 2%<br>R5 65.711.7392 3.9 follow 2%   | recom r y c 100 tone 24  Cer-Ceramic, El-Electrolytic, PP-Polipropylene, Sal-Solid aluminium  |
| C9 59.06.0633 6 C10 59.06.5474 43  C11 59.06.5154 15 C12 59.06.0103 1 C13 59.32.4102 C14 59.12.9222 2 C14 59.12.9222 2 C15 59.06.5124 81 | 88 nf 204, PETP '0 nf 54, PETP  50 nf 54, PETP  10 nf 104, PETP  1 nf 204, Cer  2 nf 14, PP  10 nf 54, PFTP  | R7 57.11.4473 47 10hm 5k QR7 57.11.274 270 10hm 5k RR8 57.11.5225 2.2 mb/m 10h RR9 57.11.1102 1 10hm 10h RR10 57.11.1102 1 10hm 10h RR10 10hm 10h  | Manufacturer: ADI-Analog Devices Inc., Fc-Fairchild, ITT-Intermetall, Man-Manufak, Mot-Motorola, MS-Micropomer Semiconductor RS-Mational Semiconductors, Ph-Philips, RS-Mational Semiconductors, Ph-Philips, RS-MS-MS-MS-MS-MS-MS-MS-MS-MS-MS-MS-MS-MS  |
| C16 59.06.0683 6<br>C17 59.26.2100 1<br>C18 59.22.272 2  | 86 nf 20%, PETP<br>10 uf 20%, 16V, Sal Ph.Ri<br>12 uf 20%, 40V, El<br>10 pF 5%, Cer  | R13 57,11,3513 51 kOhm 2½<br>R14 57,11,4822 8.2 kOhm 5½<br>01 R14 57,11,4182 18 kOhm 5½<br>R15 57,11,3513 51 kOhm 2½   | 1.820.813.81 NF - DRIYER B8186/05/2200<br>1.820.813.81 NF - DRIYER B8187/04/0701  |
| C20 59.26.0470 4   | 58 nF 204, PETP<br>30 nF 5k, Cer   | R17 57.11.45513 51 X0hm 2%<br>R18 57.11.4104 100 K0hm 2%<br>R19 57.11.4154 150 K0hm 2%   | 1.820.813.81 HF - DRIVER 88791/05/0602  |
| C23 59.05.2222 2.<br>C24 59.05.1471 47<br>C25 59.06.0683   | 00 pF  | R20 57.11.3243 24 kOhm 24<br>R21 57.11.4473 47 kOhm 54<br>R22 57.11.3203 20 kOhm 24  |   |
| 02 50,04,0134 18<br>03 50,04,0125 18<br>04 50,04,1122 18   | US950HD FDH300 Fc<br>US950HD FDH300 Fc,1TT,Ph,Ses,1f<br>HV 2 BZ455C 18 ITT,Mot,Ph,Tf,Tho<br>1V 2 BZ455C 18 ITT,Mot,Ph,Tf,Tho                             | R24 57.11.3243 24 kOhu 24<br>R25 57.11.4124 120 kOhu 24  |   |
| 05 50.04.1122 18  D5 50.04.0125 18  D7 50.04.0512 18  D7 50.04.0512 19  D9 50.04.0125 19   | V Z 8Z155C 18 ITT,Mot.Ph.Jf.Tho M4444 Fc,ITT,Ph.Ses.Tf 65018 N6509 Fc,ITT,Ph.Ses.Tf M4445 Fc,ITT,Ph.Ses.Tf M4448 Fc,ITT,Ph.Ses.Tf M4448 Fc,ITT,Ph.Ses.Tf | R  |   |

★ R15: LINE INPUT CALIBRATION RECORD ★ R2 RECORD LEVEL SETTING FOR 7,5" (31/4PS)

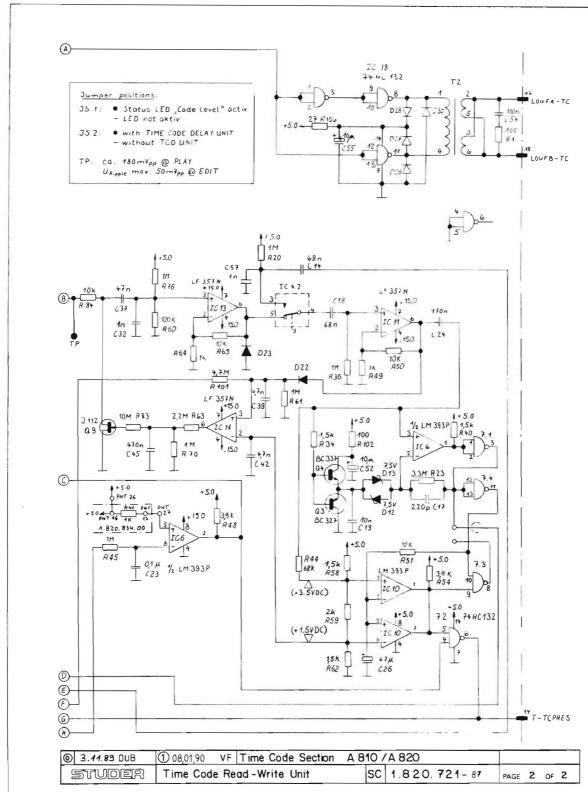
★ R8: RECORD LEVEL SETTING FOR 15" ★ R10: RECORD LEVEL SETTING FOR 30"

TIME CODE READ-WRITE UNIT 1.820.721.87



#### TIME CODE READ-WRITE UNIT 1.820.721.87

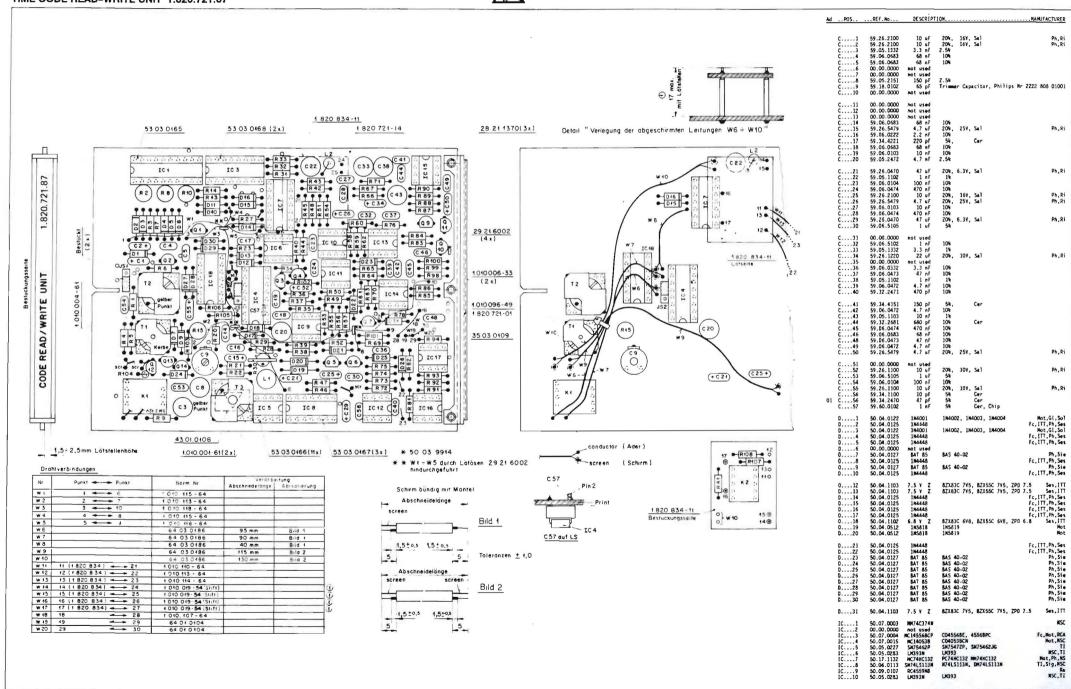




EDITION: OKTOBER 1993



#### TIME CODE READ-WRITE UNIT 1.820.721.87



| Pos   | REF.No   | DESCRIP   | TION   | UFACTURER  | AdPOS  | REF.No   | DESCRIPT  | ON  |   | MANUFACTUR |
|---|--|---|--|--|--|--|---|---|---|------------|
| IC11<br>IC12<br>IC13<br>IC14<br>IC15<br>IC16<br>IC17<br>IC18              | 50.09.0110<br>50.09.0110<br>50.09.0110<br>50.09.0110<br>50.09.0106<br>50.09.0110<br>50.09.0110<br>50.17.1132                             | LF357 A<br>LF357 A<br>LF357 A<br>LF357 A<br>ME5532AH<br>LF357 A<br>LF357 A<br>MC74HC132                         | Slew rate >40Y/lus<br>Slew rate >40Y/lus   | MS<br>MS<br>MS<br>Sig,Ex,Ra<br>MS<br>MS<br>MS<br>Mot,Ph,MS | R68<br>R69<br>R70<br>R71<br>R72<br>R73<br>R74<br>R75<br>R76  | 00.00.0000<br>57.11.3105<br>57.11.3105<br>57.11.3102<br>57.11.3221<br>57.11.3472<br>57.11.3681<br>57.11.3100<br>57.11.3105                   | not used 1 MOhm 1 MOhm 220 Ohm 4.7 kOhm 680 Ohm 10 Ohm 1 MOhm                                   | 24<br>24<br>24<br>24<br>24<br>24<br>24<br>24  |   |            |
| JS1<br>JS2  | 00.00.0000<br>00.00.0000   |   | See Note 1<br>See Note 1   |  | R80  | 57.11.3150<br>00.00.0000   | 15 Ohm<br>not used  | 24  |   |            |
| K1<br>K2  | 56.04.0171<br>56.04.0195   | SM 01012<br>TQ2   |  | 111  | R81<br>R82<br>R83  | 57.11.3102<br>57.11.3151<br>57.11.5106   | 1 k0hm<br>150 0hm<br>10 M0hm  | 24<br>24<br>54  |   |            |
| L1<br>L2  | 62.02.2122<br>62.01.0128   | 1.2 mH<br>1 mH  | TDK Mr. CSL 0812-122 J<br>Gowanda Mr. 17-104, Delevan Mr. 164                                      | 1-105  | R84<br>R85<br>R86  | 57.11.3103<br>57.11.3101<br>57.11.3104   | 10 kOhm<br>100 Ohm<br>100 kOhm  | 24<br>24<br>24  |   |            |
| Q1<br>Q2<br>Q3<br>Q4<br>Q5  | 50.03.0496<br>50.03.0436<br>50.03.0351<br>50.03.0340<br>50.03.0497   | 8C560E<br>BC237B<br>BC327-25<br>BC337-25<br>8C550E  | I  | Sie<br>ot,Ph,Sie<br>IT,Ph,Sie<br>IS,Ph,Sie<br>Sie          | R87<br>R88<br>R89<br>R90                                     | 57.11.3104<br>57.11.3101<br>57.11.3152<br>57.11.3103   | 100 kOhm<br>100 Ohm<br>1.5 kOhm<br>10 kOhm  | 24<br>24<br>24<br>24  |   |            |
| Q6<br>Q7<br>Q9<br>Q10   | 50.03.0329<br>50.03.1505<br>50.03.0350<br>50.03.0350   | WP 146<br>VN 0808M<br>J112F<br>J112F  |  | Six<br>Fe,Six<br>Sc,NS,Hot<br>Sc,NS,Hot                    | R91<br>R92<br>R93<br>R94<br>R95                              | 57.11.3103<br>57.11.3102<br>57.11.3681<br>57.11.3102<br>00.00.0000   | 10 kOhm<br>1 kOhm<br>680 Ohm<br>1 kOhm<br>not used  | 24<br>24<br>24<br>24  |   |            |
| Q11<br>Q12<br>Q13<br>Q14  | 50.03.0329<br>50.03.1505<br>50.03.0329<br>50.03.0329   | WP 146<br>VN 0808M<br>WP 146<br>WP 146  | ZVN 0108A  | Six<br>Fe,Six<br>Six<br>Six                                | R98<br>R99<br>R100   | 57.11.3105<br>57.11.5106<br>57.11.5106   | 1 MOhm<br>10 MOhm<br>10 MOhm  | 24<br>54<br>54  |   |            |
| R1 R2 R3 R4 R5 R6 R6  | 57.11.3101<br>58.11.6203<br>57.11.3103<br>57.11.3562<br>57.11.3562<br>57.11.3301<br>57.11.3105<br>58.11.6203<br>57.11.3101               | 100 Ohm<br>20 kOhm<br>10 kOhm<br>5.6 kOhm<br>5.6 kOhm<br>330 Ohm<br>1 MOhm<br>20 kOhm<br>20 kOhm                | 5k<br>See Note 2<br>2k<br>2k<br>2k<br>2k<br>2k<br>2k<br>2k<br>2k<br>See Note 2<br>2k<br>See Note 2 |  | R101<br>R102<br>R103<br>R104<br>R105<br>R106<br>R107<br>R108 | 57.11.5475<br>57.11.3101<br>57.11.5475<br>57.11.3472<br>57.11.3272<br>57.11.3270<br>57.11.3201<br>57.11.3132<br>1.022.218.00<br>1.022.215.00 | 4.7 MOhm<br>100 Ohm<br>4.7 MOhm<br>4.7 kOhm<br>2.7 kOhm<br>27 Ohm<br>200 Ohm<br>1.3 kOhm        | 5%<br>5%<br>5%<br>5%<br>5%<br>5%<br>2%<br>2%<br>Input Transformer<br>Time Code Output   | 1:1<br>Transformer                        |            |
| R10  R11  R12  R13  R14  R15  R16  R17  R17  R18  R19                     | 00.00.0000<br>00.00.0000<br>57.11.3273<br>57.11.3124<br>58.11.6502<br>00.00.0000<br>00.00.0000<br>00.00.0000<br>00.00.                   | not used<br>not used<br>27 kOhm<br>120 kOhm<br>5 kOhm<br>not used<br>not used<br>not used<br>not used<br>1 MOhm | 54<br>54<br>54<br>See Note 3   |  | T3<br>(01) 08.01.90<br>Note 1: Conta<br>Bridg                | 1.022.221.00  Optimized rect pin: Stude Berg   Philip e: Stude Comma Philip  | ading at high r Mr. Nr. Nr. ps Mr. r Mr. te) Mr. ps Mr.   | Time Code MF Tran<br>ambient temperat<br>54.01.0020<br>75 160-102-3<br>2422 025 893<br>54.01.0021<br>313.1365.000<br>2422 024 880<br>Mr. 3329 H - 1 | 6 03 408 03                               |            |
| R21<br>R22<br>R23<br>R24<br>R25<br>R26<br>R27<br>R28<br>R29<br>R30        | 57.11.3105<br>57.11.3393<br>57.11.5335<br>00.00.0000<br>00.00.0000<br>57.11.3103<br>57.11.3472<br>57.11.3102<br>57.99.0209               | 1 MOhm<br>39 kOhm<br>3.3 MOhm<br>not used<br>not used<br>not used<br>10 kOhm<br>4.7 kOhm<br>1 kOhm<br>5.6 Ohm   | 2%<br>2%<br>5%<br>2%<br>1%<br>1%<br>1%<br>1%<br>1% PTC Resistor, Philips Nr. 2322 662 9            | 1005   |  | tiometer, lim  | VRN Nr.<br>Lesa Nr<br>Bourns<br>VRN Nr.<br>Lesa Nr  | . 170 - 20k<br>170 - 20k<br>Mr. 3329 H - 1 -<br>170 - 5k  |   |            |
| R31<br>R32<br>R33<br>R34<br>R35<br>R36<br>R37<br>R38<br>R39<br>R40        | 57.11.3103<br>57.11.3104<br>57.11.3104<br>57.11.3105<br>57.11.3105<br>57.11.3105<br>57.11.3103<br>57.11.3471<br>57.11.3471<br>57.11.3471 | 10 kOhm<br>100 kOhm<br>100 kOhm<br>1.5 kOhm<br>1 kOhm<br>1 MOhm<br>10 kOhm<br>4.7 kOhm<br>4.7 kOhm<br>1.5 kOhm  | 24<br>54<br>24<br>24<br>24<br>22<br>24<br>14<br>24<br>24   |  | MANUFACTURER:  | GI=General II<br>Mot=Motorola<br>Ph=Philips,<br>Ses=Sescosem   | nstruments, I<br>, MS=Mational<br>Ra=Raytheon,<br>, Sie=Siemens<br>x, TS=Teledyn<br>n, TI=Texas | TT=Intermetall,<br>Semiconductors,<br>RCA=Radio Corp. o<br>, Sig=Signetics,<br>e Semiconductors,<br>Instruments                                     | f America,<br>St=Studer,<br>0UB89/11/0300 |            |
| R41<br>R42<br>R43<br>R44<br>R45<br>R46<br>R46<br>R47<br>R48<br>R49<br>R50 | 57.11.3102<br>57.11.3104<br>57.11.3152<br>57.11.363<br>57.11.3103<br>57.11.3103<br>57.11.3103<br>57.11.3102<br>57.11.3102                | 1 kOhm<br>100 kOhm<br>1.5 kOhm<br>68 kOhm<br>1 MOhm<br>10 kOhm<br>10 kOhm<br>1 kOhm<br>1 kOhm<br>1 kOhm         | 24<br>24<br>24<br>24<br>24<br>24<br>24<br>24<br>24<br>24   |  |  | 1.820,721.87   | CODE READ/WR  | ITE UNIT  | 00890/01/0801                             |            |
| R51<br>R52<br>R53<br>R54<br>R55<br>R56<br>R57<br>R58<br>R59<br>R60        | 57.11.3103<br>57.11.5106<br>57.11.3112<br>57.11.3392<br>57.11.3112<br>57.11.3202<br>57.11.3102<br>57.11.3102<br>57.11.3102<br>57.11.3104 | 10 k0hm<br>10 M0hm<br>1.1 k0hm<br>3.9 k0hm<br>1.1 k0hm<br>2 k0hm<br>1 k0hm<br>1.5 k0hm<br>2 k0hm<br>100 k0hm    | 24<br>54<br>14<br>24<br>14<br>14<br>14<br>14<br>15   |  |  |  |   |   |   |            |
| R61<br>R62<br>R63<br>R64<br>R65<br>R66<br>R67                             | 57.11.3105<br>57.11.3152<br>57.11.5225<br>57.11.3102<br>57.11.3103<br>57.11.3102<br>57.11.3102   | 1 MOhm<br>1.5 kOhm<br>2.2 MOhm<br>1 kOhm<br>10 kOhm<br>1 kOhm<br>1 kOhm   | 24<br>14<br>54<br>24<br>28<br>14   |  |  |  |   |   |   |            |



#### CODE DELAY UNIT 1.820.722.21 92 AJ 91 A4 A1 C2 C10.C11 c3 61 c6 26 CA-SAFE SDL 4,9152 MH2 1 V35 DO Z XTAL1 C5 R3 CZ 01,08 DO 3 DATO D1 DO 2 00 = 010,011 100 H 63 22 p D1 a DAT1 68 n D2 01 01 5 AO1 01 10 +0.0 DZ 6 02 IC8 DZ D2 DAT 2 IRO D3 02 6 A02 A 02 02 11 IC 16 03 9 03 D3 03 9 A03 A 03 D3 13 D3 L5 LS 3.2 R5 4.7K D4 13 DAT4 IC18 373 04 12 AOL 4 44 D4 14 DL 373 05 15 05 06 16 06 07 19 07 06 05 14 DAT 5 05 A 05 3 A5 DS 15 DS 05 15 AOS ICS D6 D? 06 16 A06 D6 17 DAT 6 9 P21 06 16 06 R2 10 K 10 P22 2716 HD 6803 P 07 19 A07 07 18 DAT 7 D7 07 17 07 80A A 07 R1 10K 11 P23 A09 80 A Va 26 1 CA DATA O A 10 A09 22 A9 P 42 A 11 V<sub>PP</sub> 21 +5 PGR 18 +5 DCO 13 Pso P 41 26 19 A10 A 12 CA DATA 1 20 G 2 00 OE 44 13.2 A13 Pas 2 DI 4 DATT DAT 2 SELA 16 P13 L CA DATA 2 A14 6 02 109 02 7 DATE SELB 17 P16 P .. 22 A 15 D3 8 DAT 3 03 LS CA-DATA 3 D4 13 DAT4 373 19 P 16 SC2 38 D5 15 05 D5 14 DAT 5 20 211 CA-DATA 4 Va STNBT 21 +5 D8 17 DAT 6 61 VCC 1/01 9 00 07 19 07 1/0 2 10 01 18 DAT 7 D7 DAT 5 13 12 36 L CA-DATA 5 A02 1/03 11 02 1/0 4 13 03 37 CA DATA 6 10 14 1/05 14 04 55 A05 1/06 15 05 3 AS IC 17 CA- DAYA 7 2 46 6116 1/0 7 16 06 + 5 LS 299 201 A07 1/0 8 17 07 Q. 17 SR CA- CHSTC C7 A08 ₩E 21 5 6 61 62 670p 11 51 CK A09 52 CA. ADR - 5 REGR RAM 18 CS 202 12 3 12 4 12.1 13 1 CA- ADR-R ICTI 10 11 65 SELA LS 22! 2 18 10 SELB 1CLR 2CLR 2PR 2CLR 8 13 13 4 g 2CLR 2A 2Q E 5 1C1 10 4 5 6 7 12 11 10 9 2 E I-TCOUDL 72 101 133 170 174 171 171 270 274 274 273 2 CLK 3 103 10 28 24 15.4 L5153 IC 10 2Co 2Co 10 2Co 12 2Co 13 14 15 1 14 19 1 14 19 1 17 194 1 10 191 1 15 221 2 18 10 4 CLR LS 139 1CLK 470 p R8 2× 9 1 ICLR 15 1 2 10 IC 11 1 SR 10 IC 11 1 4.7 K 6.2 ZA 28 2G R6 ] 19 2 2CLR 16 26 L574 T-TCINDL 1 7 12 82 Sandigliano A 820 / A810 Time code section ★ HAS BEEN MODIFIED

STUDER Code Delay Unit

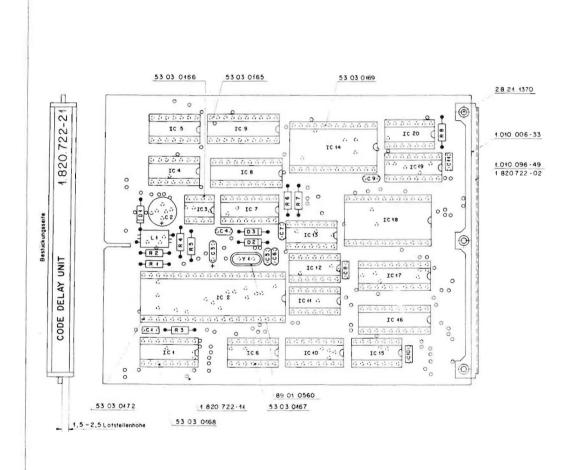
SC 1.820.722-21

PAGE 1 OF 1

UP-DATE Audio Section STUDER A820



#### CODE DELAY UNIT 1.820.722.21



| Ad POS REF. No                   | DESCRIP                                 | TION MANUFACTURER   |
|----------------------------------|---|---|
|                                  |   |   |
| C1 59.99.020                     |   | Ce  |
| C2 59.22.510                     | 100 uF                                  | 204, 6V, E1   |
| C3 59.26.047                     |   | 204r, 6Y, Sal 9h<br>Ca  |
| C4 59.34.547<br>C5 59.34.222     | 470 pr                                  | Ča  |
| C6 59.34.222                     |   | ũ   |
| C7 59.34.547                     | 470 pF                                  | Ce  |
| C8 59.99.020                     | 5 68 nF                                 | Ce  |
| C9 59.34.110                     | 1 100 pF                                | Çı  |
| C10 59.99.020                    | 5 68 mF                                 | Ce  |
| C11 59.99.020                    | 5 68 mF                                 | Cai   |
| D1 50.04.051                     | 185818                                  | 1N5819 Mot  |
| D2 50.04.012                     |   | 1M4002, 1M4003, 1M4004 Fc,GI,Mot,Sol  |
| D3 50.04.012                     | 184001                                  | 1M4002, 1M4003, 1M4004 Fc,G[,Mot,So]  |
| IC1 50.06.015                    |   | M74LS153N Sig.TI  |
| IC2 50.16.010                    | MC6803G-1                               |   |
| 1C3 50.05.020<br>1C4 50.07.090   | SN75463P<br>PM74C902                    | \$H75463JG, \$N55463JG, 053613N   |
| IC5 50.07.090                    |   | NS  |
| 1C6 50.06.000                    |   | N74LS OAN Sig.TI  |
| IC7 50.06.022                    | SN74LS221N                              | T1  |
| IC8 50.06.037                    |   |   |
| IC9 50.06.037                    | SH74L5373M                              | M74LS373M Mot, Sig, Ti  |
| IC10 50.06.013                   | 9 AM74LS139N                            | SN74LS139N AHÎ,TE   |
| IC11 50.06.007                   |   |   |
| IC12 50.06.003                   |   |   |
| IC13 50.06.000                   |   |   |
| IC14 50.14.010<br>IC15 50.06.003 |   |   |
| IC16 50.06.037                   |   |   |
| IC17 50.06.029                   |   |   |
| IC18 1.820.983.2                 |   | 50/89 TC Delay 2CH St   |
| 21 1018 1.820.983.2              |   | 50/91 TC Delay 2CH St   |
| IC19 50.06.022<br>IC20 50.06.000 |   |   |
| L1 62.01.011                     | 100000000000000000000000000000000000000 | Interference coil, Philips Nr 4312 020 36700                                  |
|                                  |   | 2 8 2 7 5 CA 5 CA   |
| R2 57.11.410<br>R2 57.11.410     |   | 54<br>54  |
| R3 57.11.447.                    |   | 5k  |
| R4 57.11.410                     | 10 tOhe                                 | 54  |
| R5 57.11.447                     |   | 54  |
| R6 57.11.410                     | 3 10 k0ha<br>3 10 k0ha                  | 54<br>54  |
| R7 57.11.410<br>R8 57.11.447     |   | 54<br>54  |
| Y1 89.01.055                     |   | Quartz 4.915 NKz, +-100 ppm   |
| 01 Y1 89.01.066                  | •                                       | Quarz 4.9152 NHz, +-100 ppm   |
| (00) 12/01/90 Software 5         | 0/89                                    |   |
| (01) 24/05/91 Studer aum         | per of quarz                            | Y1 modified   |
| (21) 18/12/91 Software 5         | 0/91                                    |   |
| Ca-Ceramic, El-Electroly         | tic, Sal-Soli                           | d aluminium   |
| Mot-Motoro<br>Sig=Signet         | Instruments,<br>la, MS=Mation           | Ni-Mitachi, Mos-Mostak,<br>al Semiconductors, Ph-Philips,<br>tron, St-Studer, |
|                                  | COOE DELAY                              |   |
| 1.820.722.2                      | CODE DELAY                              | UNIT "ESE" ZB 91/05/2401  |

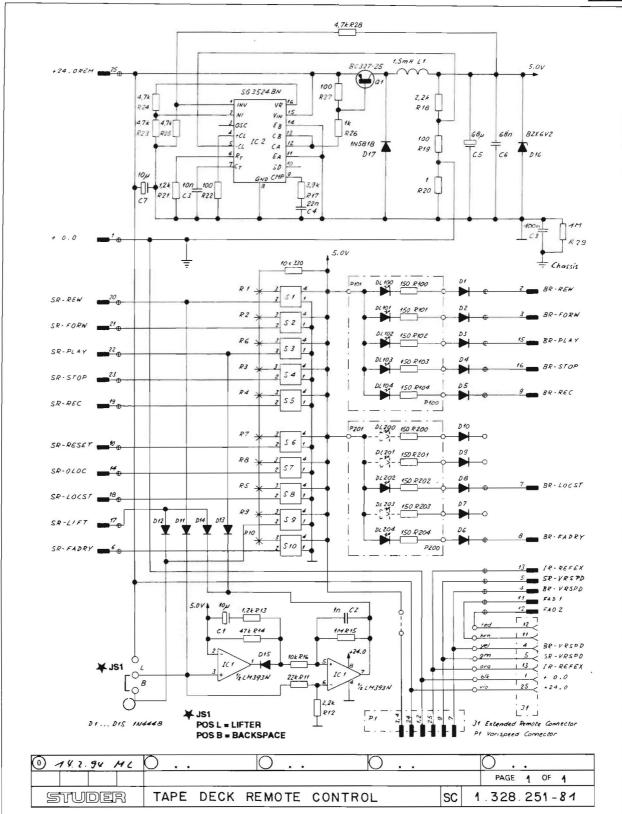
1.820.722.21 COOE DELAY UNIT

PG 91/12/1821

## TAPE DECK REMOTE CONTROL CABINET (PARALLEL) 1.328.250.81

- Tape Deck Remote Control PCB 1.328.251.81





## TAPE DECK REMOTE CONTROL CABINET (PARALLEL) 1.328.250.81 - Tape Deck Remote Control PCB 1.328.251.81

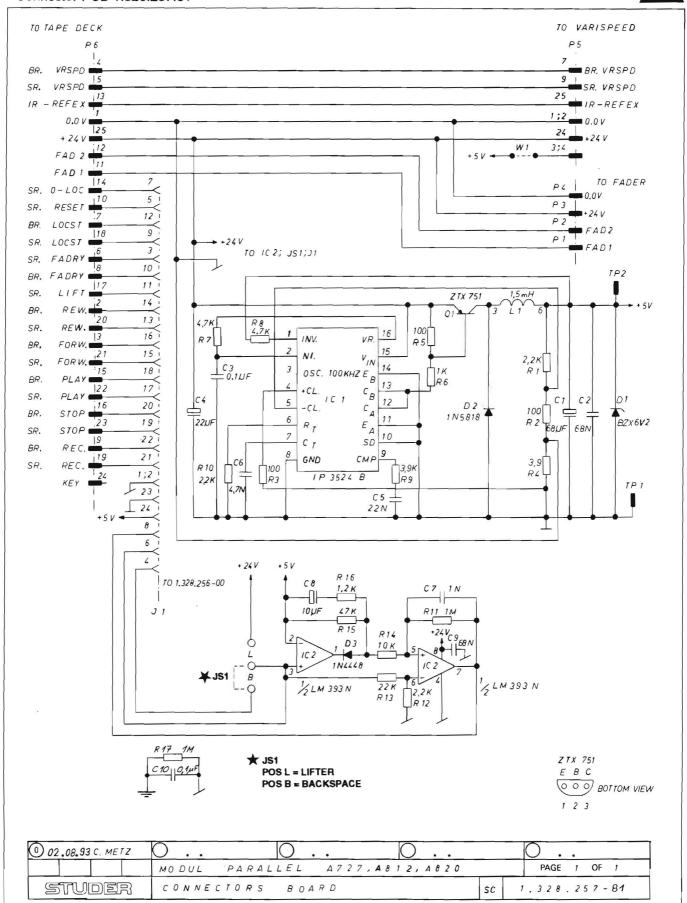


DESCRIPTION. MAMUFACTURER ... REF . No . 31 01 0103 not used WW5353 50.04.2112 CM, GI, NP CM4-5848, NLNP-3401 50.04.2112 CM,GI,HP 50.05.0283 50.05.0279 NS,Tho,TI SG 53 03 0165 55 03 1/168 1328 252 00 St L.....1 1.022.197.00 1.5 mH Anachiusse mileingode verdrillt floch aufgelegt und verlätet zur 000000000000 ................. Kupterfloche. R24 R23 R22 R21 23 01 1032 28 31 0006 ITT, Ph. Sie 35 03 0109 35 03 0120 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 \$7.11.3331 330 Ohm 829 Verschlusse oben 29 26 1022 (Befestigungslocher Print und Löföse konzentrisch) 1201 H20 (I) ¥JS1 57.11.3223 57.11.3222 57.11.3122 57.11.3473 57.11.3105 57.11.3303 57.11.3392 57.11.3222 57.11.3101 57.11.3109 22 k0hm 2.2 k0hm 1.2 k0hm 47 k0hm 1 M0hm 10 k0hm 3.9 k0hm 2.2 k0hm 100 0hm 1 0hm POS L = LIFTER POS B = BACKSPACE 58 5 10 A 1 328 251-11 1810 735-12 57.11.3122 57.11.3101 57.11.3472 57.11.3472 57.11.3472 57.11.3102 57.11.3101 57.11.3472 57.11.3105 \*\*\*\*\* .21 . 22 5 5 R...100 57.11.3151 150 Ohe R...101 R...102 R...103 R...104 57.11.3151 57.11.3151 57.11.3151 57.11.3151 57.11.3151 2...200 150 Oha 150 Oha 150 Oha 150 Oha 57.11.3151 57.11.3151 57.11.3151 57.11.3151 .MANUFACTURER 10 uf 1 mf 10 nf 22 nf 68 uf 68 nf 10 uf 100 nf 20%, 16Y, Sal 5%, PETP 1%, Pp 10%, PETP 20%, 6.3Y, Sal 20%, 40Y, El 59.26.2100 59.06.5102 59.05.1103 59.06.0223 59.26.0680 59.06.0683 59.22.6100 59.03.2104 Ansicht A+B 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.0125 1M4448 Fc.IIT.Ph.Ses.Tf
Fc.IIT.Ph.Ses.Tf A nur 2 DL und 2 Draht-Note 1 - Contact pin: Studer Bridge: Studer 54.01.0020, Berg 75 160-102-36 54.01.0021, Philips 2422 024 88003 brücken bestückt Yamaichi FAP-26-08//4, Burndy BPN 9 8 26 800 GS Studer 55.03.0261, Rafi 3.13001.110 Studer 55.03.0262, Rafi 5.55101.690 Note 3 - Switch: Ce=Ceramic, El=Electrolytic, Sal=Solid aluminium, PETP=Polyesterfilm, Pp=Polypropyles. 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.0125 50.04.1118 50.04.0512 Fc, ITT, Ph, Ses, Tf Fc, ITT, Ph, Ses, If 6.2 ITT, Ses Not D. ...11 D. ...12 D. ...13 D. ...14 D. ...15 D. ...16 D. ...17 1M4448 1M4448 1M4448 1M4448 1M4448 6.2 Y Z 1M5818 RAMNIFACTURER: CN-Chicago Miniatur, Ec-Fairchild, GI-Ganeral Instruments, NP-Newlett Packard, ITT-intarweall, Not-Motorol, KS-National Semiconductors, Phe-Philips, Ses-Sercosem, SG-Silicon General, Sie-Siemens, St-Studer, Tho-Thomson, IT-Faxas Instruments, IT-Felefantem. 26.1.94 24 /4 /4 (9) DL..100 50.04.2112 CM,GI,MP MN5353 1.328.251.81 TAPE DECK REMOTE CONTROL ML 94/01/2600 DL..101 DL..102 DL..103 DL..104 50.04.2112 50.04.2112 50.04.2112 50.04.2111 CM4-5848, HLMP-3401 CM4-5848, HLMP-3401 CM4-5848, HLMP-3401 CM4-2848, NLMP-3301 CM,GI,HP QK,1D,MO CM,GI,HP QH,1D,MO TAPE DECK REMOTE SILIDER CONTROL BOARD ESE 1.328.251-81 DL..200

## TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255.81

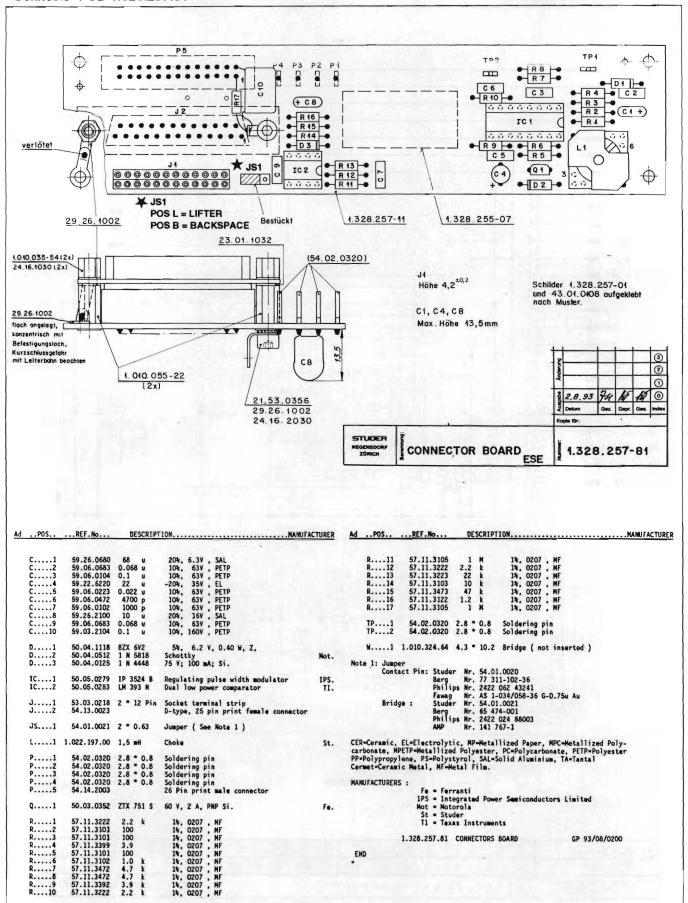
- Connector PCB 1.328.257.81





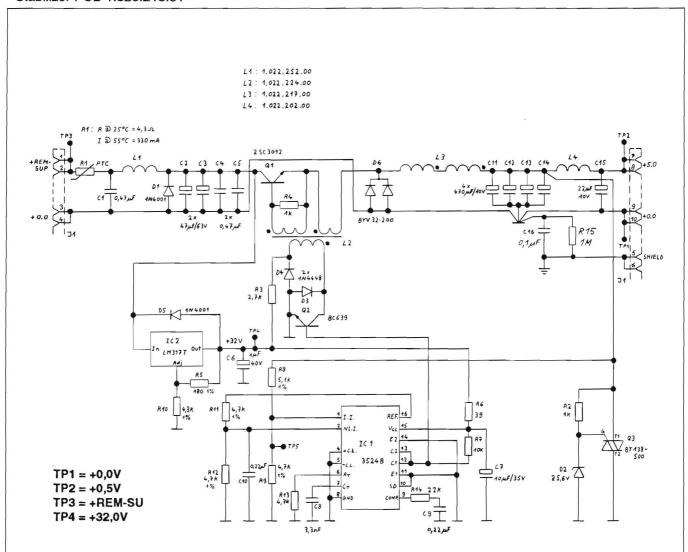
#### TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255.81

- Connector PCB 1.328.257.81



REMOTE TIMER / LAP MODE DISPLAY 1.328.270.81 REMOTE CONTROL CABINET (SERIAL) 1.328.210.81 REMOTE CONTROL MODULE (SERIAL) 1.328.220.81

- Stabilizer PCB 1.328.213.81



| <b>○</b> 24.10.85 CHE | O                | O  | O            |
|-----------------------|------------------|----|--------------|
|                       | A820/A812        |    | PAGE 1 OF 1  |
| STUDER                | STABILIZER BOARD | sc | 1.328.213.81 |

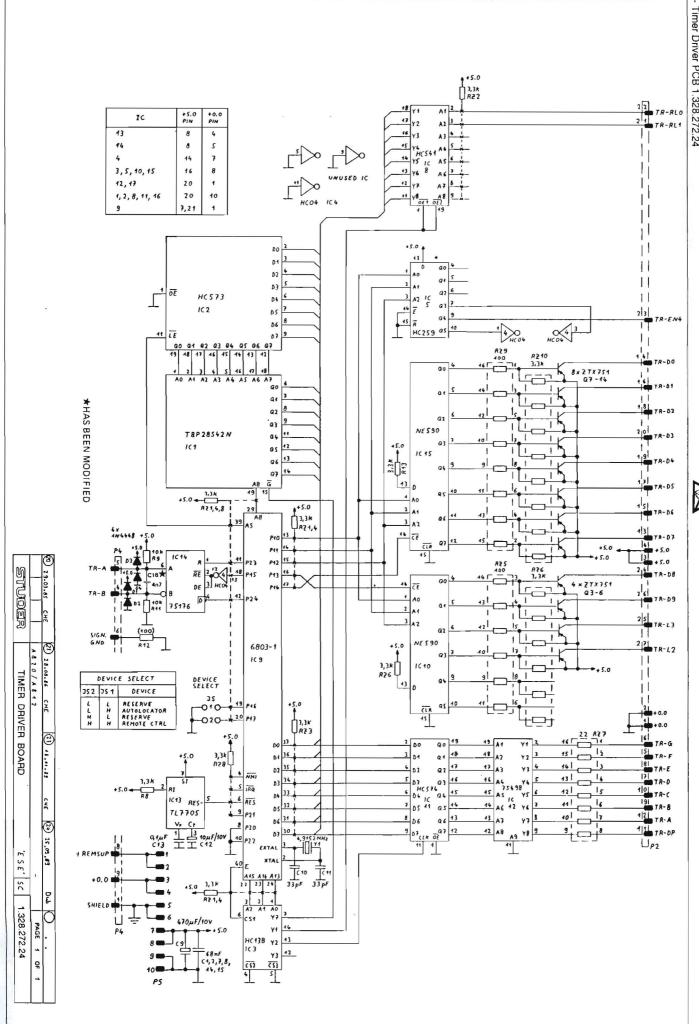
#### REMOTE TIMER / LAP MODE DISPLAY 1.328.270.81 **REMOTE CONTROL CABINET (SERIAL) 1.328.210.81** REMOTE CONTROL MODULE (SERIAL) 1.328.220.81

- Stabilizer PCB 1.328.213.81 24.16.1030 (2 x) 23.01.1032 (2 x) 0 000 24.53.0353 (2 x) IC 2 06 24.46.1030 (2x) 23.01.1032 (2x) GC 3 G 0 1.328.213-03 0 1.328.213-11 OC 20 10 CC 11 /3 TP1 = +0,0V1.328.213-01 TP2 = +0,5VTP3 = +REM-SU TP4 = +32,0V(CO1513) p.C1614 R15 21.53.2364 TP2 TP 0 0 53.03.0218 (10x) 1.040.245-27 1.328.213-02 (3x) (3) 0 0 IC 2 06 24,10.91 74 10 10 0 (1) STABILIZER BOARD ESE 1.328.213-81 Montage nach BV 632 .. POS .. ..REF.No.. ... REF . No ... DESCRIPTION. . MANUFACTURER 0.47 uF 47 uF 47 uF 0.47 uF 0.47 uF 10 uF 10 uF 3300 pF 0.22 uF 59.06.0474 59.22.8470 59.22.8470 59.06.0474 59.06.0474 59.26.9109 59.22.6100 59.06.0332 59.06.0224 59.06.0224 57.92.1331 57.11.3102 57.11.3272 57.11.3102 57.11.3181 57.11.3390 57.11.3512 57.11.3472 57.11.3432 PTC 1 2.7 1 180 39 10 5.1 4.7 4.3 20%, 20%, 10%, 20%, -20%, 10%, 10%, 14 14 14 14 14 14 kOhm kOhm Ohm Ohm kOhm kOhm kOhm 470 uF 470 uF 470 uF 470 uF 22 uF 0.1 uF 10V , EL 10V , EL 10V , EL 10V , EL 10V , SAL 50V , PETP TP... TP... TP... TP... 54.02.0320 54.02.0320 54.02.0320 54.02.0320 54.02.0320 50.04.0122 50.04.1108 50.04.0125 50.04.0125 50.04.0122 50.04.0517 BZX83 C 5V6, BZX55 C 5V6, ZPD 5.6 Ses,ITT Fc,ITT,Ph,Ses Fc,ITT,Ph,Ses Mot Mot,Ph MANUFACTURERS: Fc=Fairchild, ITT=Intermetall, Mot=Motorola, MEC=Wippon Electric Corp., MS=Mational Semiconductors, Ph=Philips, Ses=Sescosem, SG=Silicon General, St=Studer Tho=Thomson, TI=Texas Instruments SG Tho, Mot, NS, TI LM 317 SP J....1 00.00.0000 see note 1 L....1 1.022.252.00 L....2 1.022.224.00 L....3 1.022.217.00 L....4 1.022.202.00 Filter Coil Power Supply Transfor HF-Coil, 5A Filter Coil note 1 - Connector: 10 pieces Studer Nr.53.03.0218 0.32 mH St St St 2 - PTC Thermistor: R 0 25 degree Celsius = 4.7 Ohm I 0 55 degree Celsius = 330 mA Philips Nr.2322 663 13311 46 uH 16.9 mH NPN NPN 400V, 8A,Triac

1.328.213.81 STABILIZER BOARD

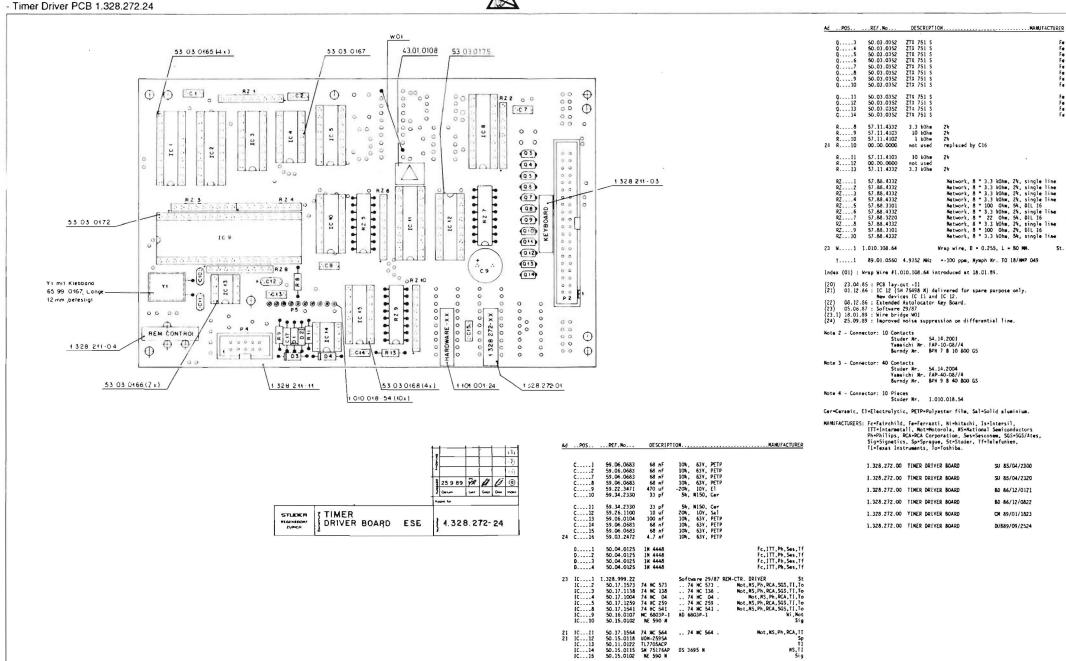
BD91/10/2400





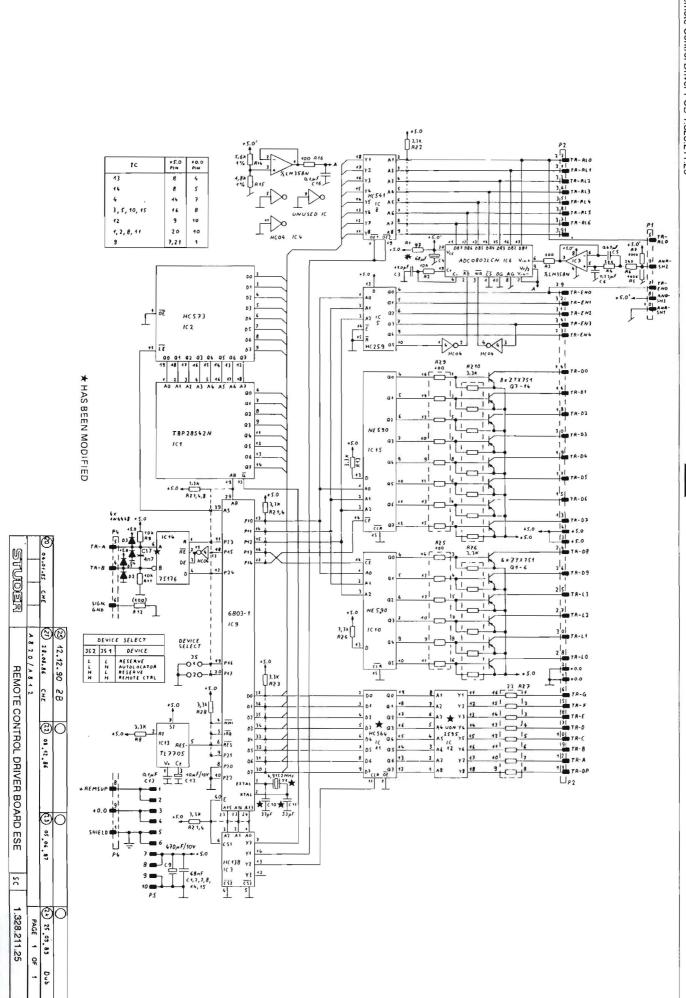
#### REMOTE TIMER / LAP MODE DISPLAY 1.328.270.81





REMOTE CONTROL CABINET (SERIAL) 1.328.210.81
REMOTE CONTROL MODULE (SERIAL) 1.328.220.81
- (Stabilizer PCB 1.328.213.81: See under 1.328.270.81)
- Remote Control Driver PCB 1.328.211.25

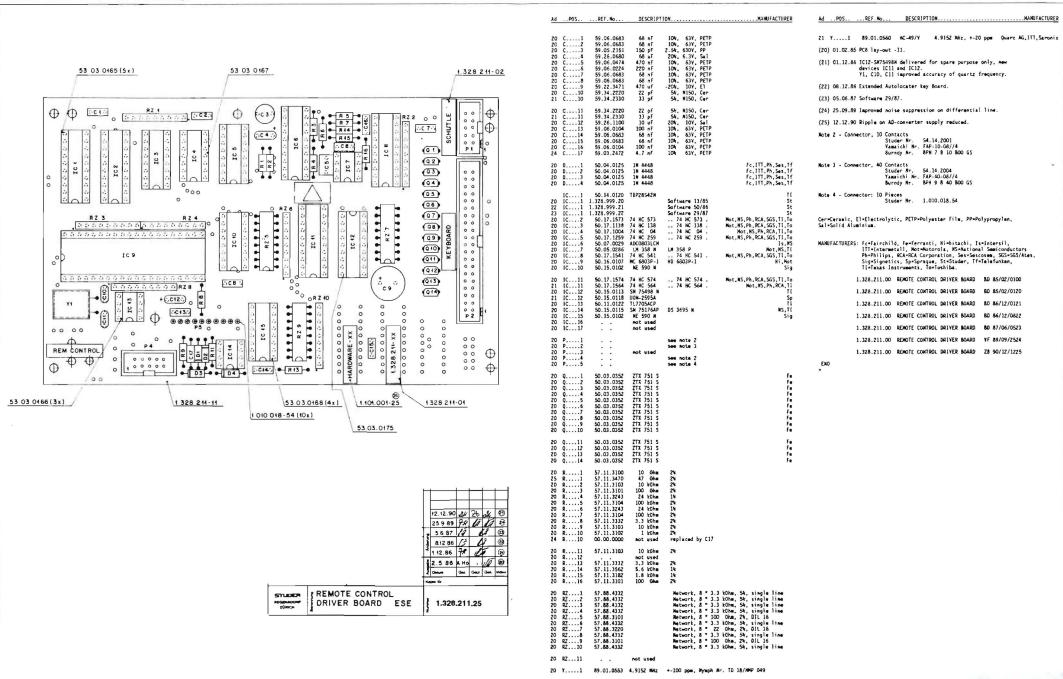




#### EMOTE CONTROL CABINET (SERIAL) 1.328.210.81 EMOTE CONTROL MODULE (SERIAL) 1.328.220.81

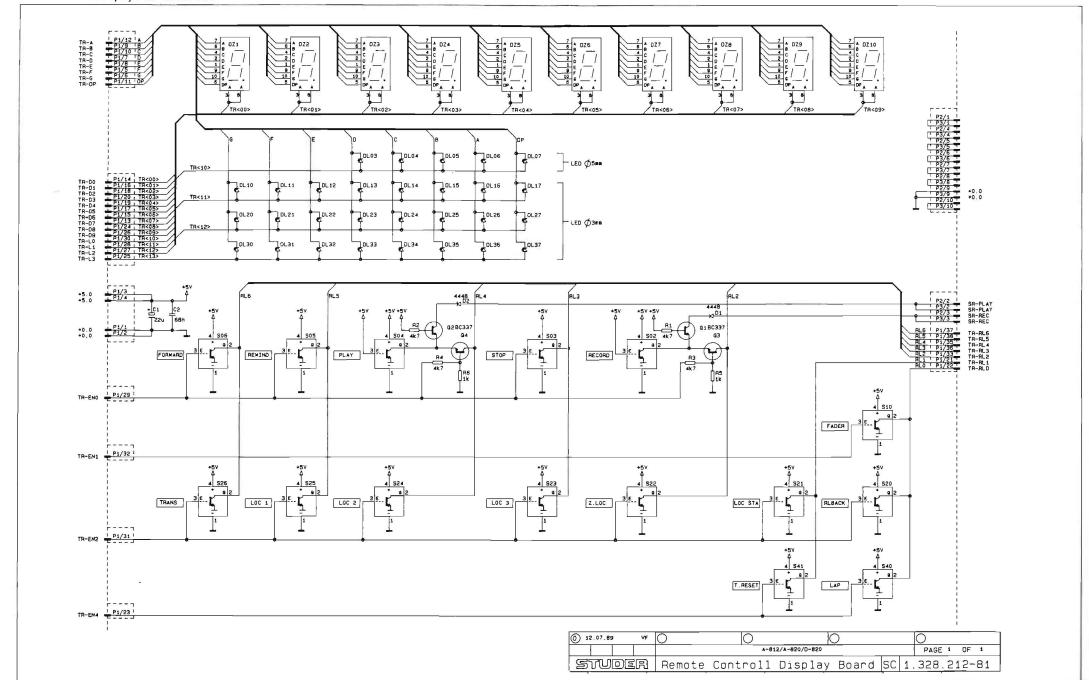
(Stabilizer PCB 1.328.213.81: See under 1.328.270.81) Remote Control Driver PCB 1.328.211.25





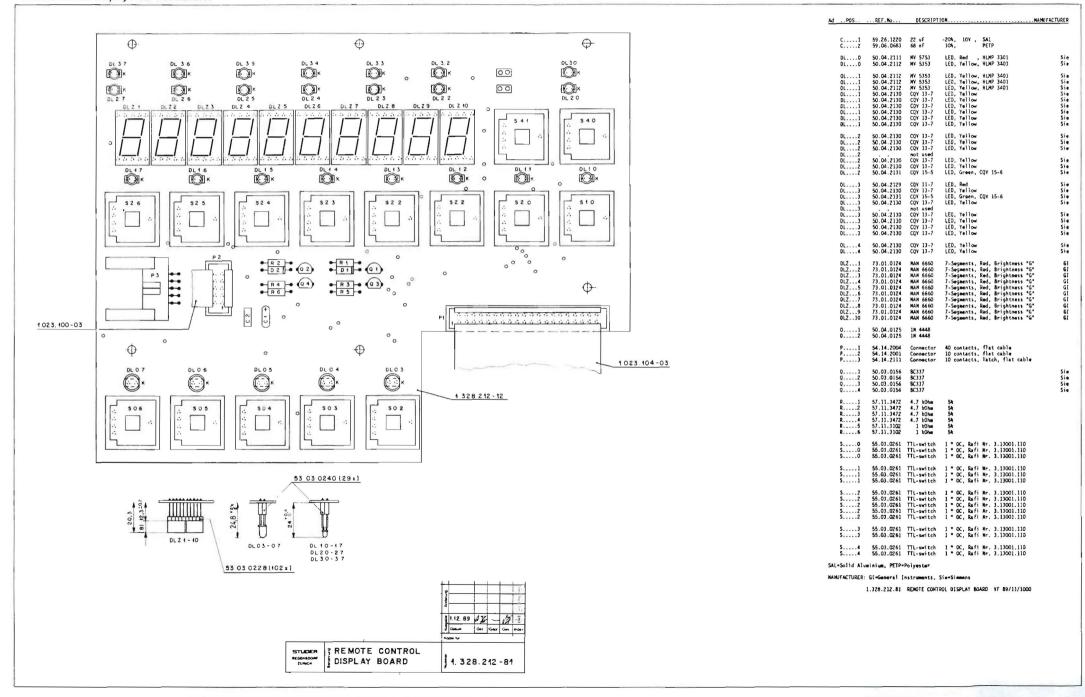
#### REMOTE CONTROL CABINET (SERIAL) 1.328.210.81 REMOTE CONTROL MODULE (SERIAL) 1.328.220.81

- Stabilizer PCB 1.328.213.81: See under 1.328.270.81)
- Remote Control Display PCB 1.328.212.81



#### REMOTE CONTROL CABINET (SERIAL) 1.328.210.81 REMOTE CONTROL MODULE (SERIAL) 1.328.220.81

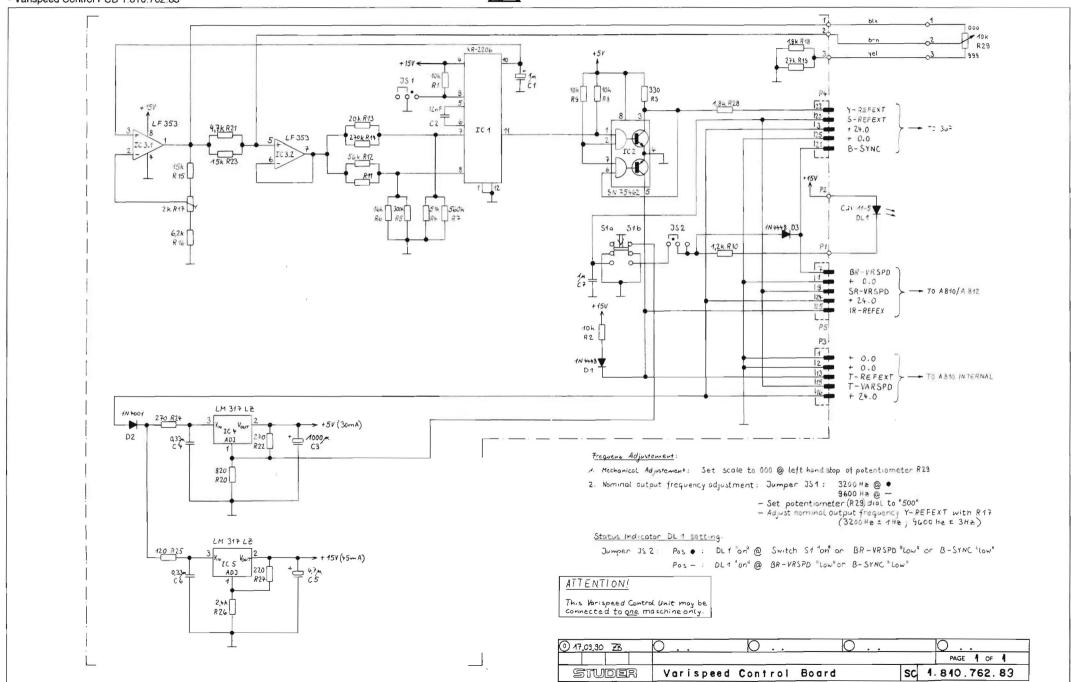
- Stabilizer PCB 1.328.213.81: See under 1.328.270.81)
- Remote Control Display PCB 1.328.212.81



## VARISPEED CONVERSION KIT (FOR PAR. REMOTE CONTROL ONLY) 1.328.253.00 VARISPEED CONTROL MODULE 1.328,290.00



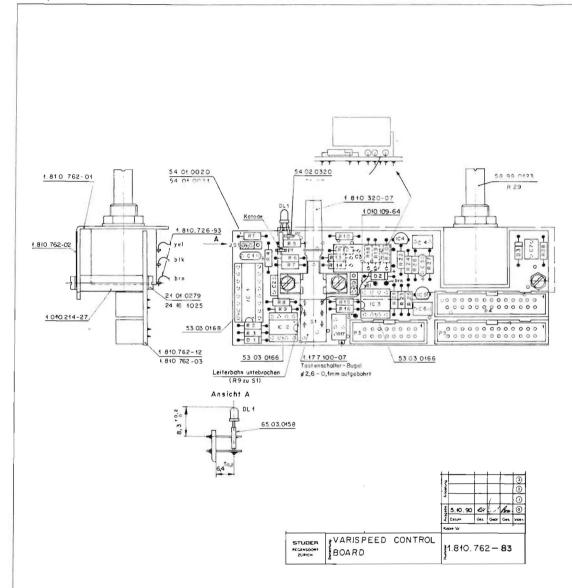
- Varispeed Control PCB 1.810.762.83



# VARISPEED CONVERSION KIT (FOR PAR. REMOTE CONTROL ONLY) 1.328.253.00 VARISPEED CONTROL MODULE 1.328.290.00

- Varispeed Control PCB 1.810.762.83





```
..POS.. ...REF.No...
                                                                            DESCRIPTION..
                                                                                                                                                                                           .MANUFACTURER
                                     59.26.9109
59.99.0220
59.99.1700
59.06.0334
59.26.5479
59.06.0334
59.06.5105
                                                                                                      204, 407, Sal

54, 507, Cer see note 1

6,37 L < 21mm 0 < 10mm

104, 637, Petp

204, 257, Sal

104, 637, Petp
                                                                        1 uf
12 af
1000 uf
0.33uf
4.7 uf
0.33uf
1uf
                                       50.04.0125
50.04.0122
50.04.0125
                                                                                                                                                                              Ph, Ses, ITT, Fc, Tf
Mot, GI, Sol
                                                                         IN 4001
IN 4448
                                                                                                                                                                               Ph. Ses . IIT . Fc . Tf
                                    50.04.2129 CQV11-7
                                                                                                                                                                                                                Sie
        DL . . . . 1
                                     50.11.0108 TR2206CP
50.05.0227 SM75462P
50.09.0101 LF 353N
50.10.0108 LM317LZ
50.10.0108 LM317LZ
                                                                                                                                                                                               TI.NS.Mot
Nat.Mot
Nat.Mot
                                    54.01.0020
54.01.0020
                                                                                                    54.01.0021 Bridge (1*) see note 2
54.01.0021 Bridge (1*) see note 2
                                    54.02.0320
54.02.0320
54.14.2102
54.14.2003
54.14.2003
                                                                                                     2.8°0,8
2.8°0,8
16-contacts
26-contacts
26-contacts
                                                                                                                                                              see note 3
see note 4
see note 4
                                      57.11.3103
57.11.3303
57.11.3331
57.11.3512
57.11.3504
57.11.3664
57.11.3103
57.11.3103
57.11.3103
                                                                          10 k0hm
10 k0hm
330 Ohm
5.1 k0hm
300 k0hm
16 k0hm
560 k0hm
10 k0hm
10 k0hm
                                                                        Not wsed
56 kOhe
20 kOhe
270 kOhe
15 kOhe
6.2 kOhe
2 kOhe
1.8 kOhe
27 kOhe
820 Ohe
                                  57.11.3563
57.11.3203
57.11.3274
57.11.3153
57.11.3622
58.05.0202
57.11.3182
57.11.3273
57.11.3821
                                                                                                                     25 turns
                                    57.11.3472
57.11.3271
57.11.3153
57.11.3271
57.11.3271
57.11.3242
57.11.3221
57.11.3182
58.99.0123
                                                                         4.7 kOhm
270 Ohm
15 kOhm
270 Ohm
120 Ohm
2.4 kOhm
220 Ohm
1.8 kOhm
10 kOhm
       R....21
R....22
R....23
R....24
R....25
R...26
R...27
R...28
R...29
        5.....1 1.177.100.07
                                                      Centralab Mr. CN 40 C 123 J
Siemens Mr. B 37 983 - J - 5123 - J
Kemet Mr. C 062 S 123 J 5 G 5 CA
   Note 1: 12nf,50V:
                                                                                           75160-102-36
2422 025 89303
65474-001
141767-1
2422 024 88003
  Mote 2: Contact pin: Berg Nr.
Philips Nr.
Bridge: Berg Nr.
AMP Nr.
Note 3: 16-contacts: Siemens Nr. Y23535-A2700-A162
Thomas+Betts 501-1627 ES
  Note 4: 26-contacts: Yamaichi Nr. FAP-26-08//4
Burndy Nr. BPH 9 B 26 BOO GS
Manufacturer: Ex=Exar, fc=fairchild, Gl=General Instruments,
ITT=Intermetall, Mot-Motorola, Mat-Mational (Matsushita)
MS=Mational Semiconductors, Ph=Philips,
Sex=Secosem, Sim=Simmens, Sol=Solitron,
St=Studen, ff=laifunken, II-lexas Instrument
                               1.810.762.83 YARISPEED CONTROL BOARD Z890/10/0500
```

STUDER

**A820** 

# **OPERATING AND SERVICE INSTRUCTIONS**



STUDER

Prepared and edited by STUDER REVOX TECHNICAL DOCUMENTATION Althardstrasse 10 CH-Regensdorf-Zürich Switzerland

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| 1  | GENERAL REFERENCES                   | Quick-reference description Versions, options Accessories and service aids Technical specifications Maintenance hints for the service personnel |
|----|--------------------------------------|---|
| 2  | STARTUP PROCEDURES                   | Installation Putting into operation Operating instructions Error messages Operation with serial interface                                       |
| 3  | POWER SUPPLY, TAPE TRANSPORT CONTROL | Circuit descriptions<br>Removal of assemblies<br>Adjustments to tape deck assemblies  |
| 4  | AUDIO                                | Circuit descriptions Calibration Adjustments to audio assemblies Programming the operating parameters   |
| 5  | GENERAL DIAGRAMS                     | Explanations to wiring lists Wiring lists General diagrams (power supply and tape deck control)   |
| 6  | DIAGRAMS MASTER SECTION              |   |
| 7  | DIAGRAMS AUDIO SECTION               |   |
| 8  | SPARE PARTS                          |   |
| 9  | DIAGRAMS ACCESSORIES                 | Parallel remote controls<br>Remote timer/lap mode display<br>Serial remote control<br>Varispeed (for par. remote control only)<br>Spare parts   |
| 10 | OPTIONS, CONVERSION KITS             | Mounting instructions   |

### CAUTION

PISK OF ELECTRIC SHOCK DO NOT OPEN

ATTENTION

RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

ACHTUNG

GEFAHR: ELEKTRISCHER SCHLAG NICHT ÖFFNEN To reduce the risk of electric shock, do not remove covers (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

Afin de prévenir un choc électrique, ne pas enlever les couvercles (où l'arrière) de l'appareil. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'usager.

Um die Gefahr eines elektrischen Schlages zu vermeiden, entfernen Sie keine Abdeckungen (oder Rückwand). Überlassen Sie die Wartung und Reparatur dem qualifizierten Fachpersonal.



This symbol is intended to alert the user to presence of uninsulated "dangerous voltage" within the apparatus that may be of sufficient magnitude to constitute a risk of electric shock to a person.

Ce symbole indique à l'utilisateur qu'il existent à l'intérieur de l'appareil des **"tensions dangereuses"**. Ces tensions élevées entrainent un risque de choc électrique en cas de contact.

Dieses Symbol deutet dem Anwender an, dass im Geräteinnern die Gefahrder Berührung von "gefährlicher Spannung" besteht. Die Grösse der Spannung kann zu einem elektrischen Schlag führen.



This symbol is intended to alert the user to the presence of **important instructions** for operating and maintenance in the enclosed documentation.

Ce symbole indique à l'utilisateur que la documentation jointe contient d'importantes instructions concernant le fonctionnement et la maintenance.

Dieses Symbol deutet dem Anwender an, dass die beigelegte Dokumentation wichtige Hinweise für Betrieb und Wartung beinhaltet.

CAUTION:

Lithium Battery. Danger of explosion by incorrect handling. Replace by battery of the same make and type only.

**ATTENTION:** 

Pile au lithium. Danger d'explosion en cas de manipulation incorrecte. Ne remplacer que par un modèle de même type.

ACHTUNG:

Explosionsgefahr bei unsachgemässem Auswechseln der Lithiumbatterie. Nur durch den selben Typ ersetzen.

ADVARSEL:

Lithiumbatterei. Eksplosinsfare. Udskinftning ma kun foretages af en sagkyndig of som beskrevet i servicemanualen. (DK)

#### FIRST AID

(in case of electric shock)

- Separate the person as quickly as possible from the electric power source:
- by switching off the equipment
- or by unplugging or disconnecting the mains cable
- pushing the person away from the power source by using dry insulating material (such as wood or plastic).
- After having sustained an electric shock, always consult a doctor.

#### **WARNING!**

DO NOT TOUCH THE PERSON OR HIS CLOTHING BEFORE THE POWER IS TURNED OFF, OTHERWISE YOU STAND THE RISK OF SUSTAINING AN ELECTRIC SHOCK AS WELL!

- 2. If the person is unconscious
- · check the pulse,
- reanimate the person if respiration is poor,
- lay the body down and turn it to one side, call for a doctor immediately.

## PREMIERS SECOURS

(en cas d'électrocution)

- Si la personne est dans l'impossibilité de se libérer:
- Couper l'interrupteur principal
- · Couper le courant
- Repousser la personne de l'appareil à l'aide d'un objet en matière non conductrice (matière plastique ou bois)
- Après une électrocution, consulter un médecin.

#### ATTENTION!

NE JAMAIS TOUCHER UNE PERSONNE QUI EST SOUS TENSION, SOUS PEINE DE SUBIR EGALEMENT UNE ELECTROCUTION.

- En cas de perte de connaissance de la personne électrocutée:
- Controller le pouls
- Si nécessaire, pratiquer la respiration artificielle
- Placer l'accidenté sur le flanc et consulter un médecin.

#### **ERSTE HILFE**

(bei Stromunfällen)

- Bei einem Stromunfall die betroffene Person so rasch wie möglich vom Strom trennen:
- Durch Ausschaften des Gerätes
- Ziehen oder Unterbrechen der Netzzuleitung
- Betroffene Person mit isoliertem Material (Holz, Kunststoff) von der Gefahrenquelle wegstossen
- Nach einem Stromunfall sollte immer ein Arzt aufgesucht werden.

#### **ACHTUNG!**

EINE UNTER SPANNUNG STE-HENDE PERSON DARF NICHT BERÜHRT WERDEN. SIE KÖN-NEN DABEI SELBST ELEKTRI-SIERT WERDEN!

- 2. Bei Bewusstlosigkeit des Verunfallten:
- Puls kontrollieren,
- bei ausgesetzter Atmung k
   ünstlich beatmen,
- Seitenlagerung des Verunfallten vornehmen und Arzt verständigen.

#### Installation, Betrieb und Entsorgung

Vor der Installation des Gerätes müssen die hier aufgeführten und auch die weiter in dieser Anleitung mit ≜ bezeichneten Hinweise gelesen und während der Installation und des Betriebes beachtet werden. Das Gerät und sein Zubehör ist auf allfällige Transportschäden zu untersuchen.

Ein Gerät, das mechanische Beschädigung aufweist oder in welches Flüssigkeit oder Gegenstände eingedrungen sind, darf nicht ans Netz angeschlossen oder muss sofort durch Ziehen des Netzsteckers vom Netz getrennt werden. Das Öffnen und Instandsetzen des Gerätes darf nur vom Fachpersonal unter Einhaltung der geltenden Vorschriften durchgeführt werden.

Falls dem Gerät kein konfektioniertes Netzkabel beiliegt, muss dieses durch eine Fachperson unter Verwendung der mitgelieferten Kabel-Gerätesteckdose IEC320/C13 oder IEC320/C19 und unter Berücksichtigung der einschlägigen, im geweiligen Lande geltenden Bestimmungen angefertigt werden, siehe Bild unten.

Vor Anschluss des Netzkabels an die Netzsteckdose muss überprüft werden, ob die Stromversorgungs- und Anschlusswerte des Gerätes (Netzspannung, Netzfrequenz) innerhalb der erlaubten Toleranzen liegen. Die im Gerät eingesetzten Sicherungen müssen den am Gerät angebrachten Angaben entsprechen.

Ein Gerät mit einem dreipoligen Gerätestecker (Gerät der Schutzklasse I) muss an eine dreipolige Netzsteckdose angeschlossen und somit das Gerätegehäuse mit dem Schutzleiter der Netzinstallation verbunden werden (Für Dänemark gelten Starkstrombestimmungen, Abschnitt 107).

### Installation, Operation, and Waste Disposal

Before you install the equipment, please read and adhere to the following recommendations and all sections of these instructions marked with  $\Lambda$ .

Check the equipment for any transport damage.

A unit that is mechanically damaged or which has been penetrated by liquids or foreign objects must not be connected to the AC power outlet or must be immediately disconnected by unplugging the power cable. Repairs must only be performed by trained personnel in accordance with the applicable regulations.

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country - see diagram below.

Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (equipment conforming to protection class I) must be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth conductor of the AC supply (for Denmark the Heavy Current Regulations, Section 107, are applicable).



IEC 320 / C13



IEC 320 / C19

Female plug (IEC320), view from contact side:

L ..... live; brown N ..... neutral; blue

National American Standard: black white

PE.... protective earth; green and yellow

green

Connecteur femelle (IEC320), vue de la face aux contacts:

L.....phase, brun N....neutre, bleu

Standard National Américain: noir

blanc

PE....terre protective; vert et jaune

vert

Ansicht auf Steckkontakte der Kabel-Gerätesteckdose (IEC320):

L.....Polleiter, braun

N.....Neutralleiter, hellblau

USA-Standard: schwarz

weiss grūn

PE....Schutzleiter, gelb/grün

Beider Installation des Gerätes muss **vermieden** werden, dass:

- das Gerät Regen, Feuchtigkeit, direkter Sonneneinstrahlung oder übermäßiger Wärmestrahlung von Wärmequellen (Heizgeräte, Heizungen, Spotlampen) ausgesetzt wird
- die für den Betrieb des Gerätes benötigte Luftzirkulation beeinträchtigt und dadurch die zulässige maximale Lufttemperatur der Geräteumgebung überschritten wird (Wärmestau)
- die Belüftungsöffnungen des Gerätes blockiert oder abgedeckt werden.

Das Gerät und seine Verpackung darf nur sachgerecht entsorgt werden. Alle Teile des Gerätes, die gefährliche Stoffe (Quecksilber, Cadmium) enthalten, müssen als Sondermüll behandelt werden.

Verbrauchte Batterien und Akkumulatoren müssen dem Hersteller zur Entsorgung zurückgegeben oder entsprechend den spezifischen Bestimmungen Ihres Landes fachgerecht entsorgt werden.

#### Wartung und Reparatur

Durch Entfernen von Gehäuseteilen, Abschirmungen etc. werden stromführende Teile freigelegt. Aus diesem Grund müssen u.a. die folgenden Grundsätze beachtet werden:

Eingriffe in das Gerät dürfen nur von Fachpersonal unter Einhaltung der geltenden Vorschriften vorgenommen werden.

Vor Entfernen von Gehäuseteilen muss das Gerät ausgeschaltet und vom Netz getrennt werden.

Bei geöffnetem, vom Netz getrenntem Gerät dürfen Teile mit gefährlichen Ladungen (z. B. Kondensatoren, Bildröhren) erst nach kontrollierter Entladung, heiße Bauteile (Leistungshalbleiter, Kühlkörper etc.) erst nach deren Abkühlen berührt werden.

Bei Wartungsarbeiten am geöffneten, unter Netzspannung stehenden Gerät dürfen blanke Schaltungsteile und metallene Halbleitergehäuse weder direkt noch mit einem nichtisolierten Werkzeug berührt werden.

Zusätzliche Gefahren bestehen bei unsachgemässer Handhabung besonderer Komponenten:

- Explosionsgefahr bei Lithiumzellen, Elektrolyt-Kondensatoren und Leistungshalbleitern
- Implosionsgefahr bei evakuierten Anzeigeeinheiten
- Strahlungsgefahr bei Lasereinheiten (nichtionisierend), Bildröhren (ionisierend)
- Verätzungsgefahr bei Anzeigeeinheiten (LCD) und Komponenten mit flüssigem Elektrolyt.

Solche Komponenten dürfen nur von dafür ausgebildetem Fachpersonal unter Verwendung von vorgeschriebenen Schutzmitteln (u.a. Schutzbrille, Handschuhe) gehandhabt werden.

The equipment installation must satisfy the following requirements:

- Protection against rain, humidity, direct solar irradiation or strong thermal radiation from heat sources (heaters, radiators, spotlights).
- Unobstructed air circulation so that the maximum air temperature in the equipment environment will not be exceeded (no heat accumulation).
- Ventilation louvers of the equipment must not be blocked or covered.

The equipment and its packing materials should ultimately be disposed off in accordance with the applicable regulations. All parts of the equipment that contain hazardous substances (mercury, cadmium) must be treated as toxic waste.

Weak batteries or exhausted rechargeable batteries must be returned to the manufacturer for competent disposal or must be disposed of in accordance with the environmental protection regulations applicable for your country.

#### Maintenance and Repair

The removal of housing parts, shields, etc. exposes energized parts. For this reason the following precautions should be observed:

Maintenance should only be performed by trained personnel in accordance with the applicable regulations. The equipment should be switched off and disconnected from the AC power outlet before any housing parts are removed.

Even after the equipment has been disconnected from the power, parts with hazardous charges (e.g. capacitors, picture tubes) should only be touched after they have been properly discharged. Hot components (power semiconductors, heat sinks, etc.) should only be touched after they have cooled off.

If maintenance is performed on a unit that is opened and switched on, no uninsulated circuit components and metallic semiconductor housings should be touched neither with your bare hands nor with uninsulated tools.

Certain components pose additional hazards:

- Explosion hazard from lithium batteries, electrolytic capacitors and power semiconductors
- · Implosion hazard from evacuated display units
- Radiation hazard from laser units (non-ionizing), picture tubes (ionizing)
- Caustic effect of display units (LCD) and such components containing liquid electrolyte.

Such components should only be handled by trained personnel who are properly protected (e.g. by goggles, gloves).

Für Wartung und Reparatur der sicherheitsrelevanten Teile des Gerätes darf nur Ersatzmaterial nach Herstellerspezifikation verwendet werden.

Das Gerät muss ordnungsgemäß und regelmäßig gewartet und somit in sicherem Zustand erhalten werden. Bei ungenügender Wartung oder bei Änderungen der sicherheitsrelevanten Teile des Gerätes erlischt die entsprechende Produktehaftung des Herstellers.

For maintenance work and repair on components that influence the equipment safety, only replacement material conforming to the manufacturer's specifications may be used.

The equipment should be properly serviced in regular intervals and be maintained in safe operating condition. If the equipment is not properly maintained or if any modifications are made to components that influence safety, the manufacturer's product liability gets void.

# Elektrostatische Entladung (ESD) bei Wartung und Reparatur

# Electrostatic Discharge (ESD) during Maintenance and Repair

ATTENTION:

Observe precautions for handling devices sensitive to electrostatic discharge!

ATTENTION:

Respecter les précautions d'usage concernant la manipulation de composants sensibles à l'électricité

statique.

ACHTUNG: Vorsichtsmassnahmen bei Handhabung elektrosta-

tisch entladungsgefährdeter Bauelemente be-

achten!



Viele ICs und andere Halbleiter sind empfindlich gegen elektrostatische Entladung (ESD). Unfachgerechte Behandlung von Baugruppen mit solchen Komponenten bei Wartung und Reparatur kann deren Lebensdauer drastisch vermindern.

Bei der Handhabung der ESD-empfindlichen Komponenten sind u.a. folgende Regeln zu beachten:

- ESD-empfindliche Komponenten d
   ürfen ausschliesslich in daf
   ür bestimmten und bezeichneten Verpakkungen gelagert und transportiert werden.
- Unverpackte ESD-empfindliche Komponenten dürfen nur in den dafür eingerichteten Schutzzonen (EPA, z.B. Gebiet für Feldservice, Reparatur- oder Serviceplatz) gehandhabt und nur von Personen berührt werden, die durch ein Handgelenkband mit Serienwiderstand mit dem Massepotential des Reparatur- oder Serviceplatzes verbunden sind. Das gewartete oder reparierte Gerät wie auch Werkzeuge, Hilfsmittel, EPA-taugliche (elektrisch halbleitende) Arbeits-, Ablage- und Bodenmatten müssen ebenfalls mit diesem Potential verbunden sein.
- Die Anschlüsse der ESD-empfindlichen Komponenten dürfen unkontrolliert weder mit elektrostatisch aufladbaren (Gefahr von Spannungsdurchschlag), noch mit metallischen Oberflächen (Schockentladungsgefahr) in Berührung kommen.
- Um undefinierte transiente Beanspruchung der Komponenten und deren eventuelle Beschädigung durch unerlaubte Spannung oder Ausgleichsströme zu vermeiden, dürfen elektrische Verbindungen nur am abgeschalteten Gerät und nach dem Abbau allfälliger Kondensatorladungen hergestellt oder getrennt werden.

Many ICs and semiconductors are sensitive to electrostatic discharge (ESD). The life of components containing such elements can be drastically reduced by improper handling during maintenance and repair work.

Please observe the following rules when handling ESD sensitive components:

- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.
- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons who wear a wristlet that is connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced and all tools, aids, electrically semiconducting work, storage and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable (voltage puncture) or metallic surfaces (discharge shock hazard).
- To prevent undefined transient stress of the components and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

#### **SMD-Bauelemente**

Der Austausch von SMD-Bauelementen ist ausschliesslich geübten Fachleuten vorbehalten. Für verwüstete Platinen können keine Ersatzansprüche geltend gemacht werden. Beispiele für korrekte und falsche SMD-Lötverbindungen in der Abbildung weiter unten.

Bei Studer werden keine handelsüblichen SMD-Teile bewirtschaftet. Für Reparaturen sind die notwendigen Bauteile lokal zu beschaffen. Die Spezifikationen aller Komponenten finden Sie in den Positionslisten im Schemateil.

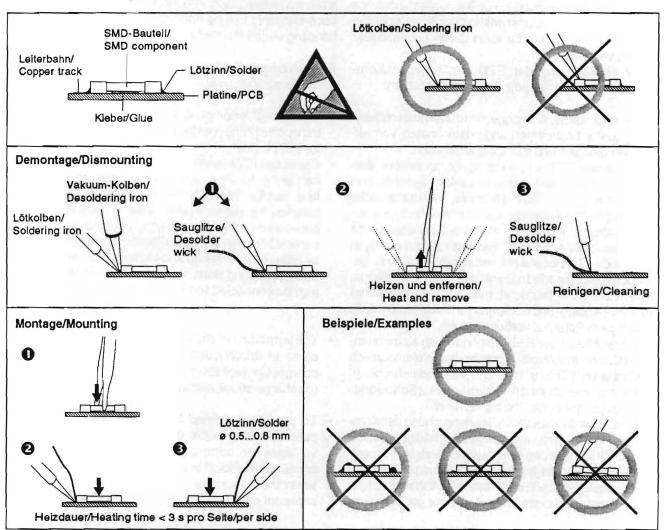
Spezialkomponenten sind in der Positionsliste mit einer Artikelnummer versehen und können bei Studer unter dieser Nummer bezogen werden.

#### **SMD Components**

SMDs should only be replaced by skilled specialists. No warranty claims will be accepted for circuit boards that have been ruined. Proper and improper SMD soldering joints are depicted below.

Studer does not keep any commercially available SMDs in stock. For repairs the corresponding devices should be purchased locally. The specifications of all components can be found in the parts lists in the diagram section.

Special components having a part number in the parts list can be ordered from Studer by specifying this number.



## Störstrahlung und Störfestigkeit

Das Gerät entspricht den Schutzanforderungen auf dem Gebiet der elektromagnetischen Phänomene, die u.a. in den Richtlinien 89/336/EWG und FCC, Part 15, aufgeführt sind:

- Die vom Gerät erzeugten elektromagnetischen Aussendungen sind soweit begrenzt, dass ein bestimmungsgemässer Betrieb anderer Geräte und Systeme möglich ist.
- Das Gerät weist eine angemessene Festigkeit gegen elektromagnetische Störungen auf, so dass sein bestimmungsgemässer Betrieb möglich ist.

Das Gerät wurde getestet und erfüllt die Bedingungen der im Kapitel "Technische Daten" aufgeführten EMV-Standards. Die Limiten dieser Standards gewährleisten mit einer angemessenen Wahrscheinlichkeit sowohl einen Schutz der Umgebung wie auch entsprechende Störfestigkeit des Gerätes. Eine absolute Garantie, dass keine unerlaubte elektromagnetische Beeinträchtigung während des Gerätebetriebes entsteht, ist jedoch nicht gegeben.

Um die Wahrscheinlichkeit solcher Beeinträchtigung weitgehend auszuschliessen, sind u.a. folgende Massnahmen zu beachten:

- Installieren Sie das Gerät gemäss den Angaben in der Bedienungsanleitung, verwenden Sie das mitgelieferte Zubehör.
- Verwenden Sie im System und in der Umgebung, in denen das Gerät eingesetzt ist, nur Komponenten (Anlagen, Geräte), die ihrerseits die Anforderungen der obenerwähnten Standards erfüllen.
- Sehen Sie ein Erdungskonzept des Systems vor, das sowohl die Sicherheitsanforderungen (Erdung der Geräte gemäss Schutzklasse I mit einem Schutzleiter muss gewährleistet sein), wie auch die EMV-Belange berücksichtigt. Bei der Entscheidung zwischen stemoder flächenförmiger bzw. kombinierter Erdung sind Vor- und Nachteile gegeneinander abzuwägen.
- Benutzen Sie abgeschirmte Kabel für die Verbindungen, für welche eine Abschirmung vorgesehen ist. Achten Sie auf einwandfreie, grossflächige, korrosionsbeständige Verbindung der Abschirmung zum entsprechenden Steckeranschluss resp. zum Steckergehäuse. Beachten Sie, dass eine nur an einem Ende angeschlossene Kabelabschirmung als Sende- resp. Empfangsantenne wirken kann (z.B. bei wirksamer Kabellänge von 5 m oberhalb von 10 MHz) und dass die Flanken der digitalen Kommunikationssignale hochfrequente Aussendungen verursachen (z.B. LS- oder HC-Logik bis 30 MHz).
- Vermeiden Sie Bildung von Stromschleifen oder vermindern Sie deren unerwünschte Auswirkung, indem Sie deren Fläche möglichst klein halten und den darin fliessenden Strom durch Einfügen einer Impedanz (z.B. Gleichtaktdrossel) reduzieren.

#### **Electromagnetic Compatibility**

The equipment conforms to the protection requirements relevant to electromagnetic phenomena that are listed in the guidelines 89/336/EC and FCC, part 15.

- 1. The electromagnetic interference generated by the equipment is limited in such a way that other equipment and systems can be operated normally.
- The equipment is adequately protected against electromagnetic interference so that it can operate correctly.

The equipment has been tested and conforms to the EMC standards applicable to residential, commercial and light industry, as listed in the Section "Technical Data". The limits of these standards reasonably ensure protection of the environment and corresponding noise immunity of the equipment. However, it is not absolutely warranted that the equipment will not be adversely affected by electromagnetic interference during operation.

To minimize the probability of electromagnetic interference as far as possible, the following recommendations should be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the above EMC standards.
- Use a system grounding concept that satisfies the safety requirements (protection class I equipment must be connected with a protective ground conductor) that also takes into consideration the EMC requirements. When deciding between radial, surface or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.
- Use screened cables where screening is specified. The connection of the screening to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable screen connected only single-ended can act as a transmitting or receiving antenna (e.g. with an effective cable length of 5 m the frequency is above 10 MHz) and that the edges of the digital communication signals cause high-frequency radiation (e.g. LS or HC logic up to 30 MHz).
- Avoid current loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. commonmode rejection choke).

## **Class A Equipment - FCC Notice**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### Caution:

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.

## CE-Konformitätserklärung

Wir.

Studer Professional Audio AG, CH-8105 Regensdorf,

erklären in eigener Verantwortung, dass das in dieser Anleitung beschriebene Produkt

· A820, Professionelles Tonbandgerāt,

auf das sich diese Erklärung bezieht, entsprechend den Bestimmungen der EU-Richtlinien und deren Ergänzungen

- Elektromagnetische Verträglichkeit (EMV): 89/336/EWG + 92/31/EWG + 93/68/EWG
- Niederspannung: 73/23/EWG, 93/68/EWG

mit den Normen und normativen Dokumenten übereinstimmt, die in den Kapiteln "Technische Daten" (Sicherheits- und EMV-Standards) dieser Anleitung aufgeführt sind. CE Declaration of Conformity

We.

Studer Professional Audio AG, CH-8105 Regensdorf,

declare under our sole responsibility that the product described in this manual

· A820, professional tape recorder,

to which this declaration relates, according to following regulations of EU directives and amendments

- Electromagnetic Compatibility (EMC): 89/336/EEC + 92/31/EEC + 93/68/EEC
- Low Voltage (LVD): 73/23/EEC + 93/68/EEC

Regensdorf, June 16, 1995

is in conformity with the standards or other normative documents which are listed in the sections "Technical Data" (security and EMC standards) in this manual.

Regensdorf, 16. Juni 1995

3. Hochstrasser, Geschäftsleiter

P. Fiala, Leiter QS

B. Hochstrasser, Managing Director

P. Fiala, Manager QA

## 1 GENERAL INFORMATION

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#### 1 GENERAL INFORMATION

## QUICK-REFERENCE DESCRIPTION

compact and highly stable design. system flexibility and the exceptional operating convenience made possible by multiple microprocessors, the STUDER A820 tape recorder is universally suited for all applications in broadcast or television studios, in music for theaters, the film industry, recording studios, scientific institutes.

Some of its outstanding features are:

- Rigid die-cast aluminium alloy chassises for tape transhead block, pinch roller unit, and other semblies.
- brushless DC capstan motor with quartz Hall-commutated. reference and capacitive speed and rotation direction sensing for highly accurate tape speed and high acceleration and braking coefficients.
- transport that allows high spooling combined with gentle tape handling by means of electronically controlled tape tension, based on servo-controlled DC motors with disc type rotors and photoelectrical speed and rotation direction sensing, and non-contacting Switched spooling motor tension sensors. for minimum power dissipation.
- Accurate electronic tape counter with real-time indication; photoelectric scanning of the guide roller rotation by means of optoswitches
- Simple editing: variable spooling speed; the high end of frequency response is deemphasized during cueing fast-wind mode. The tape tension control loop is active in the STOP position. Manual shuttling of also is possible in both directions on either reel. Built-in tape scissors; automatic positioning at the scissors of the tape address that is located in front of
- the reproduce head gap.

   Monitor speaker in the VU-meter overbridge. In versions without overbridge the speaker is built into the tape transport cover
- Manual control of the head shield in front of the record and reproduce head; can remain closed during spooling functions.

system flexibility means that A820 configuration is available for any application:

- model is available as a mono, stereo version (with center-track time code channel on request) for 1/4 inch tape, with or without VU-meter overbridge, or as a 2-channel/stereo version for inch tape with VU-meter overbridge.

  Operates in horizontal or inclined position (±7,5°
- Operates  $\pm$ 15°). Maintenance position +60°. • Four tape speeds (3.75 / 7.5 / 15 / 30 ips) programm-
- (Operation with time code is not possible at 3.75 ips)
- Inputs and outputs are balanced and floating, configur-
- switch for NAB or CCIR equalization (for 7.5 ■ Selector and 15 ips).
- Tape selector for two types of tape with different calibration data.
- and transfer locator for max. 5 addresses as standard feature.
- selector buttons on VU recorders: INP (input), ■ Output REP (reproduce), and SYNC (playback via record head).

- VU-meter panel with SAFE/READY selector, for record and reproduce mode, buttons for bypassing the level controls (calibrated, with line level). Level indication internally selectable: VU or PPM characteristic
- Voltage selector: 100 to 140 V / 200 to 240 V ±10 %, 50
- Connectors for fader start circuit, parallel and serial remote control.

The following features are available as options:

- Mono/stereo selector for stereo and 2-channel versions.
- Test generator (60, 125 Hz, 1, 10, 16 kHz)
   Interface for serial port: either RS232 interface and storage of the audio parameters (e.g. on tape) for quick recalibration of the tape recorder, or RS232 interface and SMPTE/EBU bus interface.

Maximum operating convenience by means of multiple microprocessors:

- The last operating state of the tape recorder is saved when the machine is switched off: tape counter, locator addresses, audio parameters, speed. The machine switches automatically to STOP and SAFE when the power is switched on again.
- Record drop-in by pressing the REC key in reproduce mode (internally programmable). ■ Record drop-out by pressing the PLAY key in record mode.
- speed (LIBRARY WIND): a lower ■ Reduced spooling grammable) spooling speed can be selected for producing library tape pancakes.
- Zero locator: automatic search of the (counter reading) 0.00.00.0 with the push of a button. Transfer locator LOC 1 to LOC 5: for automatic storage
- Transfer Locator LOC 1 to LOC 5: for automatic storage and searching of 5 tape addresses. The stored addresses can be read out without executing the command.
- Programmable function keys ("soft keys"): any of a repertory of approximately 100 functions can be easily asto each function key, e.g.
  - REVERSE PLAY (playback in opposite tape direction)
- FADER (local keys are disabled, only fader start pos-
- TAPE DUMP (take-up motor is switched off)
- REM CONTR (local keys are disabled, operating only via remote control)
- REHEARSE (simulation of electronic editing)
- SPOT ERASE (activation of the erase circuit tape movement, tape can be transported by hand)
- AUTO MUTE (automatic muting of the audio channels during spooling), etc.
- These keys have special recesses into which self-adhesive labels can be inserted.
- standard test system for the main functions with error diagnostics: automatic power-on self test, repeated in periodic

Audio alignments via microprocessor. With the SET/CUE-wheel functioning as a "potentiometer" the following audio parameters can be programmed (for two tape types, four tape speeds, and NAB and CCIR equalizations each):

- Reproduction/Sync: LEVEL, TREBLE, BASS, EQUALIZATION
- Recording: LEVEL, TREBLE, BIAS, EQUALIZATION
Resolution 256 steps each, hexadecimal representation on the service display

The audio parameters remain stored even when the recorder is switched off. The data can be saved by copying them via the serial interface to an external storage medium and reading them back in (also possible with the A820 tape recorder itself); automatic recalibration of the A820 tape recorder is, therefore, possible.

## STANDARD VERSIONS

#### FULL-TRACK VERSIONS

A820-1

#### A820-1

the service display.

Article No. 60.118.20011

■ Recorder for 1/4" tape.

- Mono with full-track erase head.
   Without channel mode selector.
   Monitor speaker built into tape transport cover.
   Input and output equipped with transformers.

- Built-in tape scissors.
   Maximum reel diameter 317,5 mm (12,5").
   Three of four tape speeds (3.75; 7.5; 15 ips) selectable with push buttons.
- Chassis version.

A820-1 VU

Article No. 60.118.20012

- Recorder for 1/4" tape.
- Mono with full-track erase head.
- Overbridge with:
   VU-meter unit and channel mode selector (INPUT / SYNC / REP // READY / SAFE)
- Monitor speaker.Transformerless input and output.
- Built-in tape scissors. Maximum reel diameter 355.6 mm (14").
- Four tape speeds (3.75; 7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

STEREO VERSIONS

A820-0.75

#### A820-0.75

Article No. 60.118.20021

- Recorder for 1/4" tape.
- Stereo with 0.75 mm track separation, full-track erase
- Without channel mode selector.
- Monitor speaker built into tape transport cover.Input and output equipped with transformers.

- Built-in tape scissors.

  Maximum reel diameter 317,5 mm (12,5")
- Three of four tape speeds (3.75; 7.5; 15 ips) selectable with push buttons.
- Chassis version.

A820-0.75 VU

Article No. 60.118.20022

- Recorder for 1/4" tape.

  Stereo with 0.75 mm track separation, overlapping erase head.
- Overbridge with:
- VU-meter units and channel mode selectors (INPUT / SYNC / REP // READY / SAFE)
- Monitor speaker.
- Transformerless inputs and outputs.Built-in tape scissors.
- Maximum reel diameter 355.6 mm (14")
- Four tape speeds (3.75; 7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

A820-2 F

Article No. 60.118.20030

- Recorder for 1/4" tape.

  Stereo with 2.0 mm track separation, full-track erase
- Without channel mode selector.
   Monitor speaker built into tape transport cover.
   Input and output equipped with transformers.

- Built-in tape scissors.

  Maximum reel diameter 317,5 mm (12,5")
- Three of four tape speeds (3.75; 7.5; 15 ips) selectable with push buttons.
- Chassis version.

TWO-TRACK VERSIONS

A820-2

Article No. 60.118.20033

- Recorder for 1/4" tape.
   2-Track/stereo with 2 mm track separation, with two-track erase head (no time code erasing).
- Without channel mode selector.
   Monitor speaker built into tape transport cover.
- Input and output equipped with transformers.

- Built-in tape scissors.
   Maximum reel diameter 317,5 mm (12,5").
   Three of four tape speeds (3.75; 7.5; 15 ips) selectable with push buttons.
- Chassis version.

A820-2 VU

Article No. 60.118.20034

- Recorder for 1/4" tape.
- 2-Track/stereo with 2 mm track separation, with two-
- track erase head (no time code erasing).

  Overbridge with:

   VU-meter units and channel mode select
  SYNC / REP // READY / SAFE) and channel mode selectors (INPUT /
- Monitor speaker.Transformerless inputs and outputs.
- Built-in tape scissors.
- Maximum reel diameter 355.6 mm (14").
   Four tape speeds (3.75; 7.5; 15; 30 ips) selectable with push buttons.
- Chassis versioh.

A820-2/2 VU

Article No. 60.118.20032

■ Recorder for 1/4" tape.
■ 2-Track/stereo with 2 mm track separation, with over-lapping erase head.

Overbridge with:

 VU-meter units and channe SYNC / REP // READY / SAFE) and channel mode selectors (INPUT /

- Monitor speaker

Transformerless inputs and outputs.Built-in tape scissors.

■ Maximum reel diameter 355.6 mm (14").

- Four tape speeds (3.75; 7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

TWO-TRACK VERSIONS WITH TIME CODE

A820-2 TC

A820-2 TC

Article No. 60.118.20041 ■ Recorder for 1/4" tape.

2-Track/stereo with 2 mm track separation, time code center track, and two-track erase head. ■ Overbridge with:

- Channel control units (INPUT / SYNC / REP // READY / SAFE)
- Time code channel mode selector unit (INFO), SINGREP // READY / SAFE) with additional CODE indicator

Monitor speaker.

Inputs and outputs equipped with transformers.

Built-in tape scissors.Maximum reel diameter 355.6 mm (14").

- Three tape speeds (7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

A820-2 TC VU

Article No. 60,118,20042

Recorder for 1/4" tape.

■ 2-Track/stereo with 2 mm track separation, time code center track, and two-track erase head.

Overbridge with:

- VU-meter units and channel mode selectors (INPUT / SYNC / REP // READY / SAFE)
- Time code channel mode selector unit (INFO), ....
  REP // READY / SAFE) with additional CODE indicator

- Monitor speaker

Transformerless inputs and outputs.Built-in tape scissors.

- Maximum reel diameter 355.6 mm (14").
- Three tape speeds (7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

HALF-INCH VERSION

A820-2/2-1/2" VU

Article No. 60.118.20052

A820-2/2-1/2" VU

Recorder for 1/2" tape. 2-Track/stereo with 2-track erase head.

Overbridge with:

and channel mode selectors (INPUT / - VU-meter units SYNC / REP // READY / SAFE)

Monitor speaker.

■ Transformerless inputs and outputs.

■ Built-in tape scissors.

■ Maximum reel diameter 355.6 mm (14").

- Three tape speeds (7.5; 15; 30 ips) selectable with push buttons.
- Chassis version.

OPTIONS

Mono/stereo switch

Part No. 20,820,340,00

Mono/stereo switch and test generator

Part No. 20,820,341,00

RS 232 interface (for serial remote control)

Part No. 20.820.342.00 9-pin connector, type D, screw fastening Part No. 20.020.303.07

SMPTE / EBU interface (RS 422 and RS 232)

Part No. 20.820.343.00 Part No. 20.020.303.07

9-pin connector, type D, screw fastening

15-pin connector, type D, screw fastening Part No. 20.020.303.08

Part No. 20.820.344.00

Interface for remote counter, serial remote control, and autolocator Part No. 20.820.345.00

Interface for noise reduction system (for 2 channels)

Mechanical operating hours meter Part No. 20.820.351.00

## ACCESSORIES

| Bypacked accessories   | Part         | No.  | 20.020.302.30                  |
|--|--------------|------|--------------------------------|
| 4.411  |              |      | 24 04 1015                     |
| 1 Allen screwdriver 1,5 mm                                   | Part         |      | 26.06.1015                     |
| 1 Allen screwdriver 2,0 mm                                   | Part         |      | 26.06.1020                     |
| 1 Allen screwdriver 2,5 mm                                   | Part         |      | 26.06.1025                     |
| 1 Allen screwdriver 3,0 mm<br>1 Allen screwdriver 4.0 mm     | Part         |      | 26.06.1030<br>26.06.1040       |
|  | Part         |      |                                |
|  | Part         |      | 26.06.1050                     |
|  | Part         |      | 26.06.1060                     |
|  | Part<br>Part |      | 10.258.003.09<br>10.258.003.10 |
|  |              |      |                                |
|  | Part         |      | 10.338.001.00                  |
|  | Part         |      | 10.338.002.00 55.03.0359       |
|  | Part<br>Part |      |                                |
| 6 LEDs yellow, diffused, dia. 3 mm                           |              |      | 50.04.2130                     |
| 3 Bulbs T5.5, 24 V, 40 mA                                    | Part         |      | 51.02.0145                     |
| 2 Fuses 5x20 mm, T 2,5 A SLOW<br>4 Fuses 5x20 mm, T 5 A SLOW | Part         |      | 51.01.0121                     |
|  |              |      | 51,01.0124                     |
|  | Part         |      | 51.01.0125                     |
| 6 Fuses 5x20 mm, T 10 A SLOW<br>1 Button label "LIFTER"      | Part         |      | 51.01.0126                     |
|  | Part         |      | 1.011.210.07                   |
|  | Part         |      | 1.011.210.08                   |
|  | Part         |      | 1.011.210.09                   |
|  | Part         |      | 1.011.210.10                   |
| 1 Button label "REM CONTR"<br>1 Button label "TAPE DUMP"     | Part<br>Part |      | 1.011.210.11                   |
| 1 Button label "RESET TIMER"                                 | Part         |      | 1.011.210.13                   |
| 1 Button label "ZERO LOC"                                    | Part         | No.  | 1.011.210.14                   |
| 1 Button label "LOC 1"                                       | Part         |      | 1.011.210.15                   |
| 1 Button label "LOC 2"                                       | Part         |      | 1.011.210.17                   |
| 1 Button label "LOC 3"                                       | Part         |      | 1.011.210.19                   |
| 1 Button label "LOC 4"                                       | Part         |      | 1.011.210.20                   |
| 1 Button label "LOC 5"                                       | Part         |      | 1.011.210.20                   |
| 1 Button label "TRANS"                                       | Part         |      | 1.011.210.25                   |
| 1 Button label "CUT"   | Part         |      | 1.011.210.26                   |
| 1 Button label "REV PLAY"                                    | Part         |      | 1.011.210.28                   |
| 1 Button label "ROLLBACK"                                    | Part         |      | 1.011.210.29                   |
| 1 Button label "RLB PLAY"                                    | Part         |      | 1.011.210.30                   |
| 1 Button label "RLB REC"                                     | Part         |      | 1.011.210.31                   |
| 1 Button label "SET ADDR"                                    | Part         |      | 1.011.210.32                   |
| 1 Button label "SET VARISP"                                  | Part         |      | 1.011.210.32                   |
| 1 Button label "REHEARSE"                                    | Part         |      | 1.011.210.35                   |
| 1 Button label "LIBR WIND"                                   | Part         |      | 1.011.210.41                   |
| 1 Button label "SPOT ERASE"                                  | Part         |      | 1.011.210.42                   |
| 1 Button Label "FADER START                                  | Part         | 200  | 1.011.210.42                   |
| 1 Button label "LAP"   | Part         | 100  | 1.011.210.43                   |
| 1 Button label "BACK SPACE"                                  | Part         | 1000 | 1.011.210.45                   |
| 1 Status indicator label                                     | Part         |      | 1.820.012.01                   |
| 1 Label set  | Part         |      |                                |
| 1 Power cord 2.5 m, EU appl. inlet                           | Part         |      | 10.223.001.01                  |
| 2 Ciné adapters (for 1/4" versions                           | rai t        | NO.  | 10.223.001.01                  |
| only)  | Part         | No   | 1.013.326.00                   |
| 2 NAB adapters (for 1/2" version                             | rant         | NO.  | 1.013.320.00                   |
| only)  | Part         | No   | 1.013.345.00                   |
| 1 Audio connector set (per channel)                          |              |      |                                |
| i Addio connector set their channets                         | rai t        | NO.  | 20.020.302.02                  |

#### Consoles

A820 consoles are supplied with wooden side panels. The following operating positions can be established with the tilting mechanism built into the tape transport chassis: horizontal, forward/backward inclination by 7.5° or 15°, backward inclination by 60° (maintenance position).

| Consoles                 | with travers | e:           |          |               |
|--------------------------|--------------|--------------|----------|---------------|
| <ul><li>Height</li></ul> | 780 mm, with | floor slides | Part No. | 20.020.204.00 |
| <ul><li>Height</li></ul> | 840 mm, with | floor slides | Part No. | 20.020.204.01 |
| <ul><li>Height</li></ul> | 900 mm, with | floor slides | Part No. | 20.020.204.02 |
| <ul><li>Height</li></ul> | 840 mm, with | castors      | Part No. | 20.020.204.05 |
|                          | 900 mm, with |              | Part No. | 20.020.204.06 |
| <ul><li>Height</li></ul> | 960 mm, with | castors      | Part No. | 20.020.204.07 |

Consoles with pedestal rack (19"/3 U):

Height 780 mm, with floor slides Part No. 20.020.204.10

Height 840 mm, with floor slides Part No. 20.020.204.11 Height 900 mm, with floor slides
 Height 840 mm, with castors
 Height 900 mm, with castors Part No. 20.020.204.12 Part No. 20.020.204.15 Part No. 20.020.204.16 ■ Height 960 mm, with castors Part No. 20,020,204,17 Overbridge with shelf, for A820-1, A820-0.75 und A820-2 Part No. 20.820.348.00 Overbridge with shelf and monitor speaker, for A820-1, A820-0.75 and A820-2 Part No. 20.820.349.00 Housing for TLS4000 local control unit Part No. 20,820,350,00 Pedestal rack (19", 3 U, for retrofit instead of traverse) Part No. 1,058,004,00 Filler panels for pedestal rack: ■ Height 1 U ■ Height 2 U Part No 1 918 001 00 1.918.002.00 Part No. ■ Height 3 U Part No. 1.918.003.00 Screws for 19" rack mounting: M6 x 12M6 x 16 21.99.0164 21.99.0167 Part No. Part No. Remote controls and remote counters

Parallel tape transport remote control, with 15 m cable Part table cabinet Part No. 20.820.366.00

Varispeed kit, for installation into table cabinet of parallel remote control Part No. 21.328.253.00

Secondary (pass-through) 25-pin D connector for installation into table cabinet of parallel remote control Part No. 21.328.254.00

Parallel tape transport remote control, STUDER standard module, 1 unit wide, with 15 m cable

Serial remote counter with timer and lap mode display, for installation only, with 15 m cable (option 20.820.345.00 required) Part No. 20,820,368,00

Part No. 20.820.367.00

Serial remote controller with timer and lap mode display, table cabinet with 15 m cable (option 20.820.345.00 required)

Part No. 20.820.369.00 quired)

Serial remote controller with timer and lap mode display, STUDER standard module, 5 units wide, with 15 m cable (option 20.820.345.00 required) Part No. 20.820.370.00 Part No. 20.820.370.00

#### Adapters

| Professional NAB adapter, 1/4"    | Part No. 1.013.344.00 |
|-----------------------------------|-----------------------|
| Professional NAB adapter, 1/2"    | Part No. 1.013.345.00 |
| DIN Adapter, 1/4"                 | Part No. 1.013.343.00 |
| Reel flange for DIN adapter, 1/4" | Part No. 1.013.328.00 |
| Ciné adapter, 1/4"                | Part No. 1.013.326.00 |

#### REVOX tape splicing kit

Comprising a cutting and splicing block, a cutting blade, splicing tabs, and grease pen. Part No. 10.030.452.40

#### STUDER cleaning kit in case

Contains 1 bottle of head cleaner, 1 bottle of aluminite cleaner, lint-free nonwoven fleece sheets, buckskin.

Part No. 10.496.010.00

Head cleaner, replacement bottle Head cleaner, 1 litre Aluminite cleaner, repl. bottle Aluminite cleaner, 1 litre Part No. 10.496.021.00 Part No. 10.496.022.00 Part No. 10.496.025.00 Part No. 10.496.026.00

#### Transport case

#### On request

#### Plastic dust covers

For recorders without overbridge Part No. 1.058.001.10

For recorders with overbridge Part No. 1.058.001.11

#### Conversion kits

Conversion kit 1/4" → 1/2" Part No. 21.820.499.00

Conversion kit  $1/2" \rightarrow 1/4"-2/2$  Part No. 21.820.498.00

Conversion kit 1/2" → 1/4"-0.75 Part No. 21.820.497.00

#### Splicing block

slides over service display

Part No. 20.820.382.00

#### Maintenance aids

Tool case (basic kit) with soldering iron and demagnetizing choke for 110 V Part No. 20.020.001.20

Tool case (basic kit) with soldering iron and demagnetizing choke for 220 V  $\,$  Part No. 20.020.001.21

Supplementary tool kit A820 Part No. 20.020.001.36

Extender board, 39-pin, for audio and logic modules

Part No. 1.820.799.00

Extender board, 64-pin, for logic modules
Part No. 1.228.324.81

#### Additional manuals

Operation and maintenance manual, German

Part No. 10.27.0110

Operation and maintenance manual, English

Part No. 10.27.0230

## TECHNICAL SPECIFICATIONS A820

#### Tape speeds:

30 - 15 - 7.5 - 3.75 ips (76.2 - 38.1 - 19.05 - 9.525 cm/s)

All tape speeds can be selected at the front panel (depending on the programming of the keys, either one, two, three, or four speeds can be made directly selectable).

Nominal speed adjustable ±0.2% in 0.025% steps.

#### Variable tape speed:

±7 semitones from nominal speed (+54%, -35%), displayed in %, HT (half tones) or IPS; programmable.

#### Tape speed deviation:

max. ±0.2%

Tape slip:

max. 0.1%

#### Tape reels:

NAB, CINE, DIN

max. diameter 356 mm (14 "), broadcast version 318 mm (12.5 ")

min. hub diameter 45 mm (1.77")

#### Tape width:

6.35 mm (1/4")

12.7 mm (1/2"), convertible, with automatic switchover of tape tensions and audio alignment

#### Wow and flutter:

Peak weighted according to DIN 45507 or IEC Publ. 386, respectively. Ambient temperature 0 - 40° C (32 -104' F)

| 30 ips     | 15 ips     | 7.5 ips    | 3.75 ips  |
|------------|------------|------------|-----------|
| 76 cm/s    | 38 cm/s    | 19 cm/s    | 9.5 cm/s  |
| max. 0.03% | max. 0.04% | max. 0.06% | max. 0.1% |

#### Start time:

approx. 0.5 s at 15 ips (38 cm/s) and 1000 m tape on DIN hub or 2500 ft (762 m) tape on NAB reel (to attain double value of flutter specification)

#### Tape timer:

6-digit LED, indicating hours, minutes, and seconds for all tape speeds. Counts past zero with leading negative sign.

Range: -9 h 59 min 59.9 s to 23 h 59 min 59.9 s.

#### Winding speed:

programmable, 4 - 590 ips (0.1 - 15 m/s)automatic speed reduction at the tape end.

#### Winding time:

approx. 90 s for 1000 m tape;

approx. 55 s for 2500 ft (762 m) tape

#### Stopping time form spooling:

approx. 4 s with full 1000 m-reel (tape width 1/4") from maximum winding speed

Tape tension (measured with Tentelometer directly at the left reel):

■ 1/4" version:

Reproduce and record:
 0.7 N (70 p) nominal, adjustable 0.5 - 1.8 N (50 - 180 p)

- Winding:
 0.8 N (80 p) nominal, adjustable 0.5 - 1.7 N
 (50 - 170 p)

■ 1/2" version:

- Reproduce and record:

1.2 N (120 p) nominal, adjustable 0.5 - 1.8 N (50 - 180 p)

(50 - 150 p)

- Winding:

0.9 N (90 p) nominal, adjustable 0.5 - 1.7 N

(50 - 170 p)

#### Inputs:

 Balanced and floating, with input transformer Impedance ≥ 10 kΩ, 30 Hz ... 20 kHz or

■ electronically balanced, without input transformer - Impedance ≥ 20 kQ, 30 Hz ... 20 kHz (with

balanced input signal) - Impedance ≥ 10 kΩ, 30 Hz ... 20 kHz (with

unbalanced input signal)

#### Input level:

 nominal input level relative to reference magnetic flux:

+6, +10, +14, +16 dBm; programmable

nominal input level relative to operating level (according to NAB):

0, +4, +8, +10 dBm; programmable

(adjustment of the operating magnetic flux with above input levels: 100 - 1000 nWb/m)

Recorders with VU-meter panel and input/output level controls:

max. 10 dB increase in input sensitivity with input level control in uncalibrated mode.

Maximum input level:

■ with input transformer: +24 dBm

 without input transformer: +28 dBm (+26 dBm, if the nominal input level relative to operating level is set to 0/6 dBm)

#### Outputs:

 $\blacksquare$  balanced and floating, with output transformer Impedance  $\leq$  50  $\Omega_{*}$  30 Hz ... 20 kHz Load ≥ 200 Q

or

 electronically balanced, without output transformer Impedance  $\leq$  30  $\Omega$ , 30 Hz ... 20 kHz Load  $\geq$  200  $\Omega$ 

#### Output level:

- nominal output level relative to reference magnetic flux:
- +6, +10, +14, +16 dBm; programmable
- nominal Output level relative to operating level (according to NAB):
   0, +4, +8, +10 dBm; programmable

(adjustment range of reproduce gain for operating magnetic flux of 100 - 1000 nWb/m)

Recorders with VU-meter panel and input/output level controls:

max. 10 dB increase in reproduce gain with output level control in uncalibrated mode.

#### Maximum output level:

- with output transformer:  $+24 \text{ dBm (load } \ge 200 \text{ } \Omega)$
- without output transformer:
  - balanced load ≥ 200 Q: +26 dBm

  - unbalanced load  $\geq$  200 Q: +24 dBm balanced load  $\geq$  600 Q: +30 dBm (+26 dBm, if the nominal output level relative to operating level is set to 0/6 dBm)
  - unbalanced load ≥ 600 Ω: +24 dBm

#### Equalizations:

NAB and CCIR, switch-selectable

#### Equalization time constants:

|      | 30 ips<br>76 cm/s          | 15 ips<br>38 cm/s | 7.5 ips<br>19 cm/s | 3.75 ips<br>9.5 cm/s |
|------|----------------------------|-------------------|--------------------|----------------------|
| CCIR | 17.5/ <b>ω</b> μs<br>(AES) | 35/ ω μs          | 70/ to µs          | 90/3180 µs           |
| NAB  | 17.5/ω μs<br>(AES)         | 50/3180 μs        | 50/3180 μs         | 90/3180 µs           |

### Frequency response <u>record/reproduce</u>:

|       | 30 ips  | 15 ips  | 7.5 ips | 3.75 ips |
|-------|---------|---------|---------|----------|
|       | 76 cm/s | 38 cm/s | 19 cm/s | 9.5 cm/s |
| ±2 dB | 40 Hz   | 30 Hz   | 30 Hz   | 30 Hz    |
|       | 22 kHz  | 20 kHz  | 16 kHz  | 10 kHz   |
| ±1 dB | 60 Hz   | 30 Hz   | 30 Hz   | 30 Hz    |
|       | 20 kHz  | 18 kHz  | 12 kHz  | 8 kHz    |

## Frequency response <u>SYNC reproduction</u> (from record head) • Amplifier programmed for "narrow band":

|       | 30 ips          | 15 ips          | 7.5 ips        | 3.75 ips |  |
|-------|-----------------|-----------------|----------------|----------|--|
|       | 76 cm/s         | 38 cm/s         | 19 cm/s        | 9.5 cm/s |  |
| ±2 dB | 60 Hz<br>12 kHz | 30 Hz<br>12 kHz | 30 Hz<br>8 kHz |          |  |

#### m Amplifier programmed for "wide band":

|       | 30 ips          | 15 ips          | 7.5 ips         | 3.75 ips |
|-------|-----------------|-----------------|-----------------|----------|
|       | 76 cm/s         | 38 cm/s         | 19 cm/s         | 9.5 cm/s |
| ±2 dB | 60 Hz<br>20 kHz | 30 Hz<br>18 kHz | 30 Hz<br>12 kHz |          |

#### Signal-to-noise ratios <a href="record/reproduce">record/reproduce</a>

CCIR [Equalization according to CCIR, or AES at 76 cm/s (30 ips), respectively. Measured with tape AGFA PER 528, BASF LGR 50 or equivalent type for 1/4" versions, with tape SCOTCH 3M 226 or equivalent type for 1/2" versions]

1/4" full track (320 nWb/m; 3.75 ips = 250 nWb/m), track width 6.3 mm

| ack width 6.5 mm   |    |    |    |    |    |    | 9.5<br>3.75 |    |
|--|----|----|----|----|----|----|-------------|----|
| linear, RMS, 30 Hz -<br>20 kHz                               | 63 | dB | 62 | dB | 61 | dB | 58          | dB |
| Quasi-peak, weighted<br>acc. to CCIR 468-2<br>(DIN 45405)    | 54 | dB | 53 | dB | 51 | dB | 48          | dB |
| RMS, A weighted acc.<br>to DIN 45633 as per<br>IEC Publ. 179 | 68 | dB | 66 | dB | 64 | dB | 62          | dΒ |

1/4" stereo (510 nWb/m; 3.75 ips = 400 nWb/m), tra

| ack width 2.75 mm  |       |       |       |                      |
|--|-------|-------|-------|----------------------|
|  |       |       |       | 9.5 cm/s<br>3.75 ips |
| linear, RMS, 30 Hz -<br>20 kHz                               | 65 dB | 64 dB | 62 dB | 59 dB                |
| Quasi-peak, weighted acc. to CCIR 468-2 (DIN 45405)          | 56 dB | 54 dB | 52 dB | 50 dB                |
| RMS, A weighted acc.<br>to DIN 45633 as per<br>IEC Publ. 179 | 69 dB | 67 dB | 65 dB | 63 dB                |

1/4" two-track (510 nWb/m; 3.75 ips = 400 nWb/m), track width 2.0 mm

| ack width 2.0 mm   |       |       |       | 9.5 cm/s<br>3.75 ips |
|--|-------|-------|-------|----------------------|
| linear, RMS, 30 Hz -<br>20 kHz                               | 63 dB | 62 dB | 60 dB | 57 dB                |
| Quasi-peak, weighted acc. to CCIR 468-2 (DIN 45405)          | 54 dB | 52 dB | 51 dB | 48 dB                |
| RMS, A weighted acc.<br>to DIN 45633 as per<br>IEC Publ. 179 | 68 dB | 66 dB | 64 dB | 61 dB                |

1/2" two-track (510 nWb/m),

| ck width 5.0 mm  | The second secon |       |       | 9.5 cm/s<br>3.75 ips |
|--|--|-------|-------|----------------------|
| linear, RMS, 30 Hz -<br>20 kHz                               | 70 dB  | 70 dB | 67 dB |                      |
| Quasi-peak, weighted<br>acc. to CCIR 468-2<br>(DIN 45405)    | 65 dB  | 65 dB | 62 dB |                      |
| RMS, A weighted acc.<br>to DIN 45633 as per<br>IEC Publ. 179 | 74 dB  | 73 dB | 70 dB |                      |

NAB [Equalization according to NAB, or AES at 30 ips (76 cm/s), respectively. Measured with tape SCOTCH 3M 226 or equivalent type)

1/4" full track (1040 nWb/m; 3.75 ips = 510 nWb/m),

| _  | .i! 4 7                        |       |       |       |                      |
|----|--------------------------------|-------|-------|-------|----------------------|
| ·a | ck width 6.3 mm                |       |       |       | 3.75 ips<br>9.5 cm/s |
|    | linear                         | 75 dB | 72 dB | 74 dB | 65 dB                |
|    | RMS, weighted acc.<br>to ASA-A | 78 dB | 76 dB | 77 dB | 69 dB                |

1/4" stereo (1040 nWb/m; 3.75 ips = 510 nWb/m),

|       | ck width 2.75 mm               |                   | Act               |                    |                      |
|-------|--------------------------------|-------------------|-------------------|--------------------|----------------------|
| , 1 C | ick width 2.15 mm              | 30 ips<br>76 cm/s | 15 ips<br>38 cm/s | 7.5 ips<br>19 cm/s | 3.75 ips<br>9.5 cm/s |
|       | linear                         | 72 dB             | 69 dB             | 70 dB              | 62 dB                |
|       | RMS, weighted acc.<br>to ASA-A | 75 dB             | 73 dB             | 74 dB              | 65 dB                |

1/4" two-track (1040 nWb/m; 3.75 ips = 510 nWb/m),

| ra | ck width 2.0 mm                |    | ips<br>cm/s |    |      |    |    |    |      |
|----|--------------------------------|----|-------------|----|------|----|----|----|------|
|    | linear                         | 70 | ) dB        | 68 | 3 dB | 69 | dB | 60 | ) dB |
|    | RMS, weighted acc.<br>to ASA-A | 7: | 5 dB        | 72 | 2 dB | 73 | dB | 64 | dB   |

1/2" two-track (1040 nWb/m),

| rad | ck width 5.0 mm                |    |    |    | ips<br>cm/s |    |    |      |
|-----|--------------------------------|----|----|----|-------------|----|----|------|
|     | linear                         | 74 | dB | 72 | 2 dB        | 73 | dB | <br> |
|     | RMS, weighted acc.<br>to ASA-A | 77 | dB | 75 | 5 dB        | 76 | dB |      |

### Signal-to-noise ratios record/SYNC reproduction

Amplifier programmed for "narrow band":

NAB [Equalization according to NAB, or AES at 30 ips (76 cm/s), respectively. Measured with tape SCOTCH 3M 226 or equivalent type)

1/4" full track (1040 nWb/m), track width 6.3 mm

| ack width 6.5 mm               |       |       |       | 3.75 ips<br>9.5 cm/s |
|--------------------------------|-------|-------|-------|----------------------|
| linear                         | 75 dB | 72 dB | 74 dB |                      |
| RMS, weighted acc.<br>to ASA-A | 78 dB | 76 dB | 77 dB | 1                    |

1/4" stereo (1040 nWb/m) tra

| ick width 2.75 mm              | •                 | 5-15-4            | 1-1-11-            |                      |
|--------------------------------|-------------------|-------------------|--------------------|----------------------|
| ick width 2.75 mm              | 30 ips<br>76 cm/s | 15 ips<br>38 cm/s | 7.5 ips<br>19 cm/s | 3.75 ips<br>9.5 cm/s |
| linear                         | 72 dB             | 69 dB             | 70 dB              |                      |
| RMS, weighted acc.<br>to ASA-A | 75 dB             | 70 dB             | 74 dB              |                      |

1/4" two track (1040 nWb/m),

| r 2 | rack width 2.0 mm              |    |             |    |    |    |    |      |
|-----|--------------------------------|----|-------------|----|----|----|----|------|
|     | E WIGON E.O MIN                |    | ips<br>cm/s |    |    |    |    |      |
|     | linear                         | 70 | ) dB        | 68 | dB | 69 | dB | <br> |
|     | RMS, weighted acc.<br>to ASA-A | 75 | 5 dB        | 72 | dB | 73 | dB | <br> |

Distortion: (Record/reproduce, 1 kHz, measured with tape

| AGFA PER 528)                            |           | 8 cm/s 19 cm/s<br>5 ips 7.5 ips |         |
|--|-----------|---------------------------------|---------|
| CCIR, full track<br>(320 nWb/m)          | ≤ 1,0 % ≤ | 1,0 % ≤ 1,5 %                   | ≤ 2,0 % |
| CCIR, stereo and 2-<br>track (510 nWb/m) | ≤ 1,0 % ≤ | 1,0 x ≤ 1,5 x                   | ≤ 2,0 % |

Distortion: (Record/reproduce, 1 kHz, measured with tape

| COTCH 3M 226)       | 76 cm/s | 38 cm/s<br>(510 |         | 3.75 ips<br>9,5 cm/s<br>(400<br>nWb/m) |
|---------------------|---------|-----------------|---------|--|
| NAB, full track     | ≤ 0,5 % | ≤ 0,5 %         | ≤ 0,5 % | ≤ 0,5 %                                |
| NAB, stereo/2-track | ≤ 0,5 % | ≤ 0,5 %         | ≤ 0,5 % | ≤ 0,5 %                                |

Cross-talk attenuation: (at 1 kHz, according to DIN 45521)

Stereo recorders: Two-track recorders: ≥ 65 dB

Erase efficiency: at 1 kHz and 510 nWb/m, 15 ips (38 cm/s)

Stereo recorders with full-track erase head: Two-track recorders with overlapping erasure: ≥ 75 dB

Erase and bias frequency:

153.6 kHz for all tape speeds

#### VU-meter:

Switchable between VU indication (according to IEC recommendation 268, Part 10, Section 4) and PPM (peak programme meter; according to IEC recommendation 268, Part 10, Section 3, except for 24, 1, scale division)

Power supply: (switch selectable)

100 V - 140 V or 200 V - 240 V; ±10%; 50 or 60 Hz

Power consumption (at nominal voltage):

| Stop (no tape Loaded):           |     | 80  | W |  |
|----------------------------------|-----|-----|---|--|
| Recording on 2 channels, without | TC: | 130 | W |  |
| Spooling:                        |     | 160 | W |  |
| Max. power consumption:          |     | 450 | W |  |

Disturbed operation: (transient line voltage failure)

Operating status unaffected by line voltage failures up to 100 ms

#### Ambient temperatures:

0° C ... +40° C (+32° F ... +104° F)

Relative humidity:

20% ... 90%, non-condensing

#### Safety Standards:

EN 60065/1993; IEC 65/1985, class I equipment (line filter, power switch, power fuse, power transformers and line voltage selector conform to class I and II equipment).

#### **EMC Standards:**

EN 50081-1/1992; EN 50082-1/1992

#### Weight:

■ 1/4" versions:

53 kg ... 91 kg, depending on configuration gross: 73 kg ... 119 kg, depending on configuration (air freight)

73 kg ... 119 kg, depending on configuration

(sea freight)

■ 1/2" versions: net: 53 kg net: 53 kg ... 91 kg, depending on configuration gross: 73 kg ... 119 kg, depending on configuration

(air freight)

73 kg ... 119 kg, depending on configuration (sea freight)

#### TECHNICAL SPECIFICATION OF THE TIME CODE CHANNEL

The time code channel conforms to IEC publication 461, DIN 45511, part 7.

Track width/location:

0.38 mm, center of tape

Code format:

SMPTE/EBU 80 bits address code (selectable 24/25/29.97/ 30 frames/second)

Tape speeds:

30 - 15 - 7.5 ips (76.2 - 38.1 - 19.05 cm/s)

Magnetic flux of the time code track:

729 nWb/m pp ±3 dB

Time code channel line input:

balanced and floating, with transformer. Input impedance  $\geq$  10  $k\Omega$ 

Input level:

nom.: 2 V pp min.: 0.25 V pp max.: 4 V pp

Time code channel line output:

balanced and floating, with transformer Output impedance  $\leq$  40  $\Omega$ 

Output level:

2 V pp, load ≥ 200 Q

Cross talk attenuation code channel to audio:

≥ 90 dB for all components of the time code signal, relative to 510 nWb/m magnetic flux of audio track.

Tape travel time compensation electronics (TIME CODE DELAY UNIT):

switchable tape travel time compensation for:

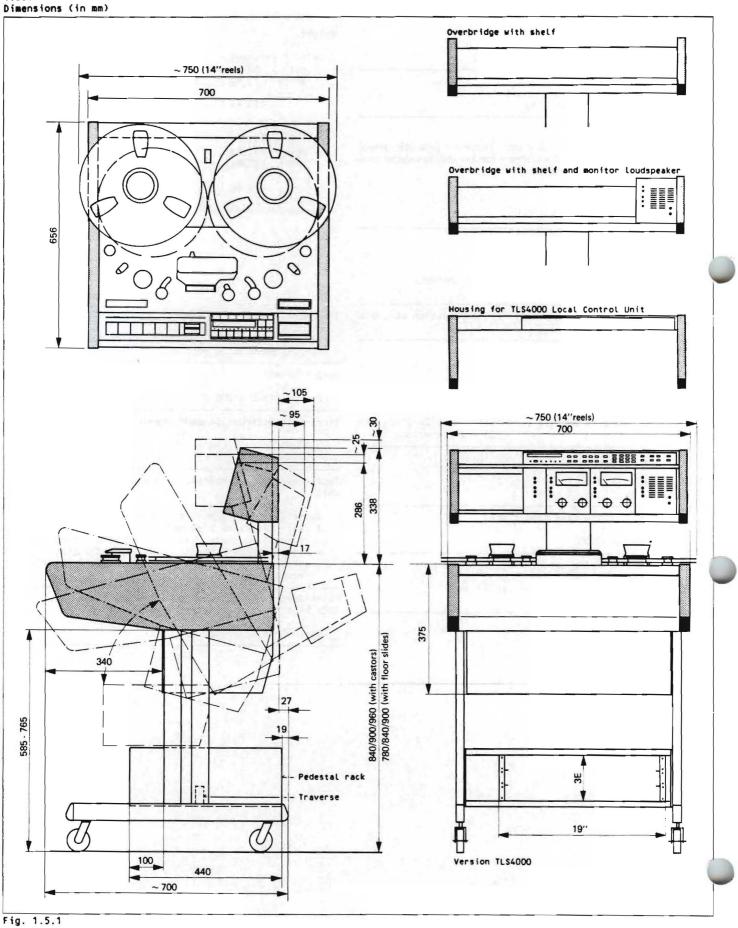
coincident time code and audio channel recording and reproducing, resp., at 24/25/29.97/30 frames/second
 M15A-TC compatible time code and audio channel re-

cording and reproducing, resp., at 24/25/29.97/30frames/second

Coincidence error between code and audio track: (if TIME CODE DELAY UNIT in coincident mode)

max.  $\pm 2$  ms at 15 ips (38 cm/s)

1.5.1 Dimensions (in mm)



1.5.2 Packing 1.5.3 Level diagrams

Recorders with VU-meter panel: Carton 82 x 84 x 120/126/132 cm (depending on console height)

Recorders without VU-meter panel: Carton 82 x 84 x 93/99/105 cm ( (depending on console

height)

Gross weight: 73 kg - 119 kg

(depending on configuration)

Refer to Section 7 (diagrams audio).

## STANDARD CALIBRATION DATA

These data are values that are transferred from the ROM into the RAM and the latches of the audio amplifiers in the event that the RAM data are lost. These values ensure that the recorder can still be used despite this loss of data, albeit possibly with a minor degradation in audio quality. They are not intended as a substitute for individual calibration through which component and manufacturing to learning seems. ing tolerances can be compensated.

The data are represented as hexadecimal numbers, i.e. the same form they also appear on the service display. i.e. in

These data apply to 2 mm 2-channel machines, reference level (operating level) 320 nWb/m (or 257 nWb/m for 3.75 ips), tape type 3M 226.

| Speed | Mode   | Equal. | Level | Treble | Bass | Equal. |
|-------|--------|--------|-------|--------|------|--------|
| 3.75  | REPRO  |        | 82    | 70     | 90   | 95     |
| 3.75  | RECORD |        | 26    | B0     | 30   | BB     |
| 3.75  | SYNC   |        | 00    | 00     | 00   | 00     |
| 7.5   | REPRO  | CCIR   | 66    | 39     | 80   | 87     |
| 7.5   | RECORD | CCIR   | 30    | A0     | 3E   | 75     |
| 7.5   | SYNC   | CCIR   | 62    | 50     | 96   | 87     |
| 7.5   | REPRO  | NAB    | 66    | 39     | 80   | 61     |
| 7.5   | RECORD | NAB    | 30    | A0     | 3E   | 99     |
| 7.5   | SYNC   | NAB    | 62    | 50     | 96   | 61     |
| 15    | REPRO  | CCIR   | 66    | 30     | 6A   | 44     |
| 15    | RECORD | CCIR   | 30    | 54     | 46   | BA     |
| 15    | SYNC   | CCIR   | 62    | 50     | 88   | 44     |
| 15    | REPRO  | NAB    | 66    | 30     | 6A   | 61     |
| 15    | RECORD | NAB    | 30    | 54     | 46   | 99     |
| 15    | SYNC   | NAB    | 62    | 50     | 88   | 61     |
| 30    | REPRO  |        | 66    | 38     | 48   | 26     |
| 30    | RECORD |        | 30    | 1B     | 50   | DE     |
| 30    | SYNC   |        | 62    | 50     | 60   | 26     |
| Speed | Mode   | Equal. | Level | Treble | Bass | Equal. |

## 1.7 MAINTENANCE HINTS FOR THE SERVICE PERSONNEL

1.7.1 Abbreviations

| Α   | assembly                           |
|-----|------------------------------------|
| ANT | antenna                            |
| В   | bulb                               |
| BA  | battery, accumulator               |
| BR  | optocoupler (bulb> LDR)            |
| С   | capacitor                          |
| D   | diode, DIAC                        |
| DL  | LED                                |
| DLQ | optocoupler (LED> phototransistor) |
| DLR | optocoupler (LED> LDR)             |
| DLZ | LED array, 7 segment display       |
| DP  | photodiode                         |
| DZ  | rectifier                          |
| E   | electronic part                    |
| EF  | headphones                         |
| F   | fuse                               |
| FL  | filter                             |
| H   | head (sound-, erase-)              |
| HC  | hybrid circuit (thick/thin film)   |
| HE  | hall element                       |
| IC  | integrated circuit                 |
| J   | jack (female)                      |
| JS  | jumper                             |
| K   | relay, contactor                   |
| L   | inductor                           |
| LS  | loudspeaker                        |
| M   | motor                              |
| ME  | meter                              |
| MIC | microphone                         |
| MP  | mechanial part                     |
| P   | plug (male)                        |
| PU  | pick up                            |
| Q   | transistor, FET, thyristor, TRIAC  |
| QP  | phototransistor                    |
| QPZ | phototransistor array              |
| R   | resistor                           |
| RP  | light depending resistor (LDR)     |
| RT  | temperature sensitive resistor     |
| RZ  | resistor array                     |
| S   | switch                             |
| 1.0 | transformer                        |
| TL  | delay line                         |
| ΤP  | test point                         |
| ×   | wire, stranded wire                |
| ХB  | socket, holder<br>lamp socket      |
| XF  | fuse holder                        |
| XIC | IC-socket                          |
| Y   | quartz, piezoelectric element      |
| ż   | network, array                     |
|     |                                    |
|     |                                    |

These abbreviations may be combined (max. 3 characters).

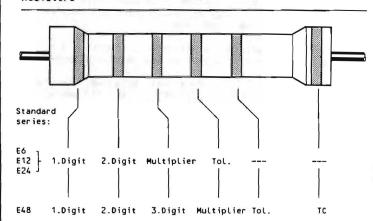
1.7.2 Powers of ten

| Name   | Abbreviation | <b>V</b> alue |
|--------|--------------|---------------|
| Tera-  | T            | 10**12        |
| Giga-  | G            | 10**9         |
| Mega-  | M            | 10**6         |
| Kilo-  | k            | 10**3         |
| Milli- | m            | 10**-3        |
| Mikro- | ) μ          | 10**-6        |
| Nano-  | n (mµ#)      | 10**-9        |
| Pico-  | p (μμ#)      | 10**-12       |
| Femto- | f            | 10**-15       |

# frequently used in the United States

1.7.3 Code letters and colors

Resistors



| Color  | Digit | Multiplier | Tolerance | Tempcoefficient      |
|--------|-------|------------|-----------|----------------------|
| gold   | -     | 0,01       | 5 X       | -                    |
| silver | - 1   | 0,1        | 10 %      | _                    |
| black  | 0     | 1          | -         | 1 -                  |
| brown  | 1 1   | 10         | 1 %       | 100 * 10 ** -6 / K   |
| red    | 2     | 100        | 2 %       | 50 * 10 ** -6 / K ## |
| orange | 3     | 1 k        | _         | 15 * 10 ** -6 / K    |
| yellow | 4     | 10 k       | -         | 25 * 10 ** -6 / K    |
| green  | 5     | 100 k      | 0,5 %     | _                    |
| blue   | 6     | 1 M        | 0,25 %    | i=.                  |
| violet | 7     | 10 M       | 0,1 %     | _                    |
| grey   | 8     | -          | _         | _                    |
| white  | 9     | -          | 1-1       | _                    |

## either no mark for temperature coefficient, or red

#### Capacitors

The tolerance category is sometimes specified by a letter after the rated capacitance.

D = 0,5 X

F = 1 X G = 2 X J = 5 X

K = 10 %

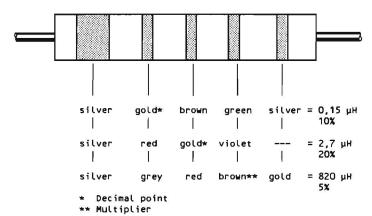
#### Inductors, transformers

#### Molded RF coils

A wide silver-colored ring and 4 thin, differently colored rings identify molded RF coils. The wide silver ring indicates the start of the counting direction. The second, third, and fourth ring indicate the inductance in micro Henry ( $\mu$ H), where two of the three rings represent the numeric value, the third one either a multiplier or the decimal point. In the latter case it has a golden color. The fifth ring identifies the tolerance in percent ( $\pm$ ).

| Color      | Digit | Multiplier | Tolerance |
|------------|-------|------------|-----------|
| black      | 0     | 1          | -         |
| brown      | 1     | 10         | 1 %       |
| red        | 2     | 100        | 2 %       |
| orange     | 3     | 10**3      | _         |
| yellow     | 4     | 10**4      | -         |
| green      | 5     | 10**5      | 0,5 %     |
| blue       | 6     | 10**6      | _         |
| violet     | 7     | 10**7      | =         |
| grey       | 8     | 10**8      | _         |
| white      | 9     | 10**9      | -         |
| gold       |       |            | 5 %       |
| silver     | _     | _          | 10 %      |
| any (nat). | _     | _          | 20 %      |

### Examples:



#### Inductors, transformers on ferrite cores

Inductors and transformers on ferrite cores with three colored dots (for color codes, refer to the table in the section "Resistors", the two left-hand columns). These dots represent the last three digits of the STUDER standard number, the largest of them identifying the start. The first digits of the standard number ing the start. The first dig (1.022.---) are always the same

E.g.: Driver Transformer, 150 kHz. Standard number: 1.022.211 Color code: red (large dot), brown, brown

al 1 of the winding form is usually identified by a if not the winding form features a yellow dot near lobe; terminal No. 1.

## Electrostatically sensitive semiconductor devices



MOS (Metal oxide semiconductor) devices are very sensitive to electrostatic charges. The following precautions should, therefore, be observed:

- 1. Electrostatically sensitive semiconductor devices and assemblies are stored and shipped in protective packing material. This protective packing is identified with the label illustrated above.
- 2. Strictly avoid contact of the connector pins with plastic bags and foils or other statically chargeable materials.
- 3. Ensure that your wrist is grounded before touching the connector pins.
- 4. Use a grounded, conductive plastic pad as a work surface.
- 5. Never unplug or insert printed circuit boards while the equipment is under power! The equipment must have been switched off for at least 5 seconds before any PCBs are pulled out or inserted!

#### INSTALLATION, OPERATING

|         | THIS TALLER TION, OF ERRITHG                                      |            |
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#### 2. INSTALLATION, OPERATING

## 2.1 UNPACKING AND TESTING

The A820 tape recorder is delivered in special packing material which protects it from damage in transit. Care should be exercised when unpacking the recorder so that the equipment surfaces will not become marred.

Compare the content with the packing slip to ensure that the equipment is complete. Save the original packing material since it provides the best protection for your recorder for subsequent shipment.

Examine the complete content for possible transit damage. The forwarding company and the nearest STUDER dealer should be notified immediately in the event of damage.

## 2.2 PLACE OF INSTALLATION

The A820 tape recorder should be installed in a well ventilated location that is as dust-free as possible. The recorder specifications are guaranteed for ambient temperatures ranging from 0 to 40°C. The relative humidity (non condensing) should range between 20 and 90%.

Install the recorder in such a place that there is sufficient space for unrestricted ventilation. Particularly when a recorder is installed in a recess, localization of heat can occur. The air circulation zone should not be used as a storage area for manuals etc. when the recorder is being used.

The recorder must not be placed in close proximity to strong electromagnetic fields. General sources of such interference are: strong load fluctuations on adjacent power lines, high-power transformers, elevator motors, as well as nearby radio and television transmitters.

The back of the recorder should remain accessible for maintenance purposes. If the recorder is installed in a recess, sufficient clearance for shifting the recorder should remain even after the cables are attached.

## 2.3 INSTALLING THE TAPE RECORDER

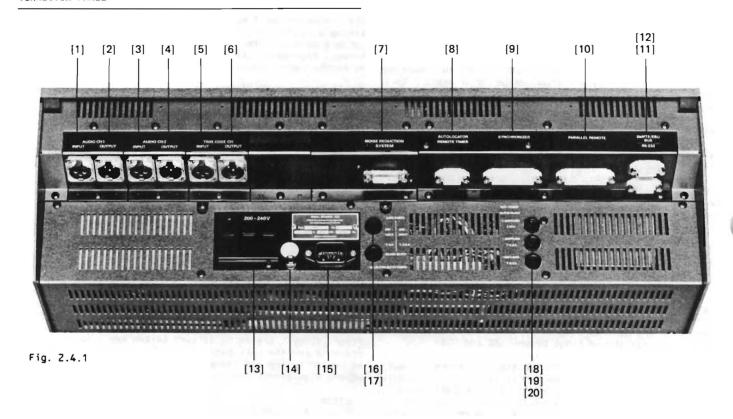
The equipment specifications are guaranteed for any operating position between horizontal or  $\pm 7.5^{\circ}$  and  $\pm 15^{\circ}$  inclination.

## 2.3.1 Installation of console

The recorder is shipped in the disassembled condition. First the console side panels with mounted rollers or floor slides are to be screwed (Allen key 5 mm) to the traverse (or the rack base) after which the tape deck can be placed on top and fastened (Allen key 6 mm). Secure the wooden side panels with 4 screws each (Allen key 4 mm).

CAUTION!
DURING FAST WIND OPERATIONS THE CONSOLE TILTING MECHANISM
MUST NOT BE ACTUATED — TAPE, REELS, REEL ADAPTORS, AND
TAPE TRANSPORT COVER MAY BE SERIOUSLY DAMAGED AS A RESULT
OF THE HIGH GYRO FORCES!

2.4 CONNECTOR PANEL



- [1] CH1 line in- and output
- [3] CH2 line in- and output
- [5] Time code channel line in- and output
- [7] Socket for noise reduction system (option)[8] Socket for serial remote control, remote counter and
- autolocator (option)
  [9] Socket for synchronizer (only for TC versions)
  [10] Socket for parallel remote control

- [11], [12] Parallel-connected terminals for SMPTE/EBU bus, RS232 interface or data back-up on external medium (option)

- (option)
  [13] Line voltage selector
  [14] Ground terminal
  [15] AC power connection (appliance inlet)
  [16] Primary fuse (audio)
  [17] Primary fuse (tape transport)

- [18] Secondary fuse, +power supply [19] Secondary fuse, -power supply [20] Secondary fuse, capstan motor

#### 2.4.1 AC power, voltage selector

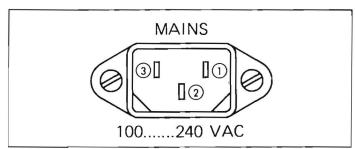


Fig. 2.4.2

No. 1 Phase

No. 2 Protector ground

No. 3 Neutral

#### Caution

Before the recorder is connected for the first time, verify that the setting of the voltage selector on the rear panel of the recorder matches the local line voltage. The following line vo 200...240 VAC, ±10%. voltages can be set: 100...140

Disconnect the recorder from the AC supply before making any changes! Unfasten the cover of the voltage selector (2 screws, Allen key No. 2.5), change over three switches and reinstall the cover, rotated by 180°.

After the voltage selector setting has been changed, the power fuses have to be replaced with those of the correct

100...140 VAC: T 5 A (slow) 200...240 VAC: T 2.5 A (slow)

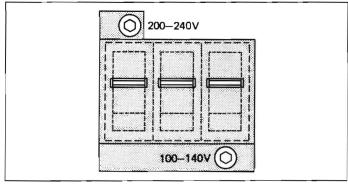


Fig. 2.4.3

#### 2.4.2 Line input and output

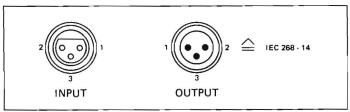


Fig. 2.4.4

The balanced inputs and outputs are terminated on XLR male female sockets (described in the IEC recommendation

No. 1 Audio ground No. 2 A-line (hot) \* No. 3 B-line (cold)

\* The A-line is hot if the recorder is connected to an unbalanced source.

#### 2.4.3 Remote control connectors

#### Connector PARALLEL REMOTE CONTROL

- A 25-pin connector (female, type D) permits connection of a parallel remote control with the following features:

  Remote control of tape transport functions with acknowledgment (<, >, PLAY, STOP, REC)

  RESET TIMER (resetting of the tape counter)

- ZERO LOC (automatic searching of the tape counter address 0.00.00.0)
- LOC START (automatic searching of the tape counter
- dress at which the last PLAY command was entered)

  LIFTER (cancellation of the tape lift during spooling for as long as the key is pressed)

  FADER (enabling of fader start circuit)

  VARISPEED (variable tape speed)

Connector set Connector housing, 25-pin Connector, 25-pin, coded

Part No. 20.020.303.16 Part No. 54.13.7022 Part No. 10.217.001.06

Pin assignment of the PARALLEL REMOTE CONTROL connector:

| Pin | Signal na | me | Designation                           |
|-----|-----------|----|---------------------------------------|
| 01  | +0.0      |    | Ground                                |
| 02  | BR-REW    | *  | Acknowledgment lamp, REWIND           |
| 03  | BR-FORW   | *  | Acknowledgment lamp, FORWARD          |
| 04  | BR-VRSPD  | *  | Acknowledgment lamp, VARISPEED (if    |
|     |           |    | active, alternating LOW and HIGH)     |
| 05  | SR-VRSPD  | +  | Switch for VARISPEED command          |
| 06  | SR-FADRY  | +  | Switch for FADER START READY command  |
| 07  | BR-LOCST  | *  | Acknowledgment lamp LOC START         |
| 80  | BR-FADRY  | *  | Acknowledgment lamp FADER START READY |
| 09  | BR-REC    | *  | Acknowledgment lamp RECORD            |
| 10  | SR-RESET  | +  | Switch for RESET TIMER command        |
| 11  | FAD1      |    | Input FADER START command, line A     |
| 12  | FAD2      |    | Input FADER START command, line B     |
| 1   |           |    | (FADER START active if 5 to 24 V      |
|     |           |    | AC or DC between pins 11 and 12)      |
| 13  | IR-REFEX  |    | Input for ext. capstan PLL reference  |
| - 1 |           |    | (nominal 9.6 kHz, TTL level recom-    |
| -   |           |    | mended; max. input voltage = +10 V)   |
| 14  | SR-OLOC   | +  | Switch for ZERO LOC command           |
| 15  | BR-PLAY   | *  | Acknowledgment lamp, PLAY             |
| 16  | BR-STOP   | *  | Acknowledgment lamp, STOP             |
| 17  | SR-LIFT   | +  | Switch for LIFTER command             |
| 18  | SR-LOCST  | +  | Switch for LOC START command          |
| 19  | SR-REC    | +  | Switch for RECORD command             |
| 20  | SR-REW    | +  | Switch for REWIND command             |
| 21  | SR-FORW   | +  | Switch for FORWARD command            |
| 22  |           | +  | Switch for PLAY command               |
| 23  |           | +  | Switch for STOP command               |
| 24  | KEY       |    | Coding                                |
| 25  | +24.0     |    | Supply +24 V (300 mA max.)            |

- \* Open collector output, active LOW. No internal pull-up resistor, max. HIGH level = 30 V. Sink current 200 mA
- max. HIGH level = 30 V. Sink current 200 mA max., internal current limit resistor 22  $\Omega$ . Switch input, LOW level activates command. Internal pull-up resistor 4.7 k $\Omega$  connected to +24 V, max. HIGH input level = 30 V. Logic levels: LOW: 0 V to 4 V; HIGH: 7.5 V to 30 V.

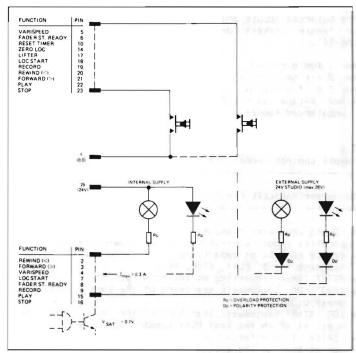


Fig. 2.4.5 REMOTE CONTROL CIRCUIT

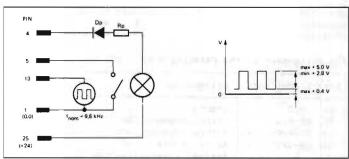


Fig. 2.4.6 VARISPEED CONTROL CIRCUIT

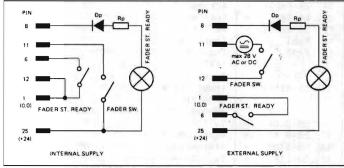


Fig. 2.4.7 FADER START CIRCUIT

Caution! If light bulbs are used as acknowledgment lamps, inrush current must not exceed 0.3 A.

#### Connector EXTERNAL SYNCHRONIZER

A 25-pin connector (female, type D) is available for connecting an external synchronizer.

Only for time code versions.

Connector set Connector housing, 25-pin Connector, 25-pin, coded

Part No. 20.020.303.15 Part No. 54.13.7022 Part No. 10.217.001.05

Pin assignment of the EXTERNAL SYNCHRONIZER connector:

| Pin | Signal na | me | Designation   |
|-----|-----------|----|---|
| 01  | +0.0      |    | Ground  |
| 02  | BR-REW    | *  | Acknowledgment lamp, REWIND   |
| 03  | BR-FORW   | *  | Acknowledgment lamp, FORWARD  |
| 04  | BR-VRSPD  | *  | Acknowledgment lamp, VARISPEED (if active, alternating LOW and HIGH)  |
| 05  | SR-VRSPD  | +  | Switch for VARISPEED command  |
| 06  | SR-REHSL  | +  | Switch for REHEARSAL command  |
| 07  | OR-MVCLK  | *  | Output for TAPE MOVE CLOCK signal (512 pulses/15", on/off ratio 50 %)   |
| 08  | KEY       |    | Coding  |
| 09  | BR-REC    | *  | Acknowledgment lamp RECORD  |
| 10  | OR-MVDIR  | *  | Output for signal TAPE MOVE DIRECTION (Rewind = LOW, forward = HIGH)  |
| 11  | OR-CMCLK  | *  | Output f. signal CAPST. M. MOVE CLOC<br>(1200 pulses/sec. @ 7.5 ips)  |
| 12  | OR-SYENB  |    | Output for signal SYNCHRONIZER ENABL<br>(LOW if tape loaded & recorder ready<br>HIGH if tape not tensioned)       |
| 13  | IR-REFEX  |    | Input for ext. capstan PLL reference<br>(nominal 9.6 kHz, TTL level recom-<br>mended; max. input voltage = +30 V) |
| 14  | +0.0      |    | Ground  |
| 15  | BR-PLAY   | *  | Acknowledgment lamp, PLAY   |
| 16  | BR-STOP   | *  | Acknowledgment lamp, STOP   |
| 17  | SR-LIFT   | +  | Switch for LIFTER command   |
| 18  | SR-MUTE   | +  | Switch for MUTE command (TC channel not affected)   |
| 19  | SR-REC    | +  | Switch for RECORD command   |
| 20  | SR-REW    | +  | Switch for REWIND command   |
| 21  | SR-FORW   | +  | Switch for FORWARD command  |
| 22  | SR-PLAY   | +  | Switch for PLAY command   |
| 23  | SR-STOP   | +  | Switch for STOP command   |
| 24  | KEY       |    | Coding  |
| 25  | +24.0     |    | Supply +24 V (300 mA max.)  |

\* Open collector output, active LOW. No internal pull-up resistor, max. HIGH level = 30 V. Sink current 200 mA max., internal current limiting resistor 22 Q. 
+ Switch input, LOW level activates command. Internal pull-up resistor 4.7 kQ connected to +24 V, max. HIGH input level = 30 V. Logic levels: LOW: 0 V to 4 V; HIGH: 7.5 V to 30 V.

Connector for RS232 interface and SMPTE/EBU BUS, or RS232 interface and data save  $\,$ 

This 9-pin connector (female, type D) permits connection of either a terminal with RS232 interface (ASCII protocol) or a tape recorder for saving the Audio parameters (option 1.810.751.00), or of a terminal with RS232 interface (binary protocol) or the SMPTE/EBU bus (RS422) (option 1.820.751.20).

Connector set

part No. 20.020.303.07

Pin assignment of the RS232 or SMPTE/EBU bus connector (option 1.820.751.00)

| RS232 |  |  |
|-------|--|--|
| name  |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |
|       |  |  |

| RS  | 6422          |
|-----|---------------|
| Pin | Signal name   |
| 01  | SHIELD        |
| 02  | TRANSMIT A    |
| 03  | RECEIVE B     |
| 04  | RECEIVE COM.  |
| 05  |               |
| 06  | TRANSMIT COM. |
| 07  | TRANSMIT B    |
| 08  | RECEIVE A     |
| 09  | SHIELD        |
|     |               |

Pin assignment of the RS232 or data save connector (option 1.810.751.00)

| Pin | Signal name |
|-----|-------------|
| 01  | FRMGND      |
| 02  | TRANSA      |
| 03  | RECEIVB     |
| 04  | FRMGND      |
| 05  | SPARE       |
| 06  | TRANSCM     |
| 07  | TRANSB      |
| 08  | RECEIVA     |
| 09  | FRAMGND     |

#### Connector AUTQLOCATOR/REMOTE TIMER

The 9-pin connector (female, type D) permits connection of a serial remote control, of a remote counter, or an auto-Locator.

The keys of the serial remote control can be programmed by the user as desired. All functions can be operated with the remote control that are available on the local keyboard. The functions programmed for the serial remote control do not necessarily have to be the same as those on the local keyboard!

Pin assignment of the AUTOLOCATOR/REMOTE TIMER connector:

|     | 3.7         |
|-----|-------------|
| Pin | Signal name |
| 01  | SHIELD      |
| 02  | N.C.        |
| 03  | TR-A        |
| 04  | KEY         |
| 05  | +0.0        |
| 06  | N.C.        |
| 07  | TR-B        |
| 08  | SIG.GND     |
| 09  | +REMSUP     |
|     |             |

#### Connector NOISE REDUCTION SYSTEM

The 15-pin connector allows the remote control of the record/reproduce switchover of a two-channel noise reduction system (DOLBY <R> or TELCOM <R>).

Connector set

part No. 20.020.303.08

Pin assignment of the NOISE REDUCTION SYSTEM connector:

| Pin | Signal name | Designation                          |
|-----|-------------|--------------------------------------|
| 01  | B-BDY-01 *  | Control signal for DOLBY system, CH1 |
| 02  | B-BDY-02 *  | Control signal for DOLBY system, CH2 |
| 03  | N.C.        |                                      |
| 04  | N.C.        |                                      |
| 05  | N.C.        |                                      |
| 06  | N.C:        |                                      |
| 07  | N.C.        |                                      |
| 08  | N.C.        |                                      |
| 09  | N.C.        |                                      |
| 10  | N.C.        |                                      |
| 11  | B-TCL-01 +  | Control signal for TELCOM system, CH |
| 12  | N.C.        |                                      |
| 13  | B-TLC-02 +  | Control signal for TELCOM system, CH |
| 14  | +24.0       |                                      |
| 15  | +0.0        |                                      |

- \* Open collector output, active LOW. No internal pull-up resistor. Max. HIGH level 30 V, max. current 200 mA.
   + Open collector output, as above, but active HIGH.

2.4.4 Headphones socket

TIP = left-hand RING = right-hand SLEEVE = ground

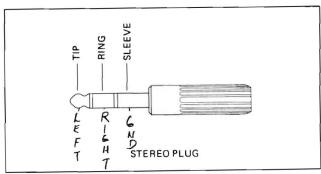
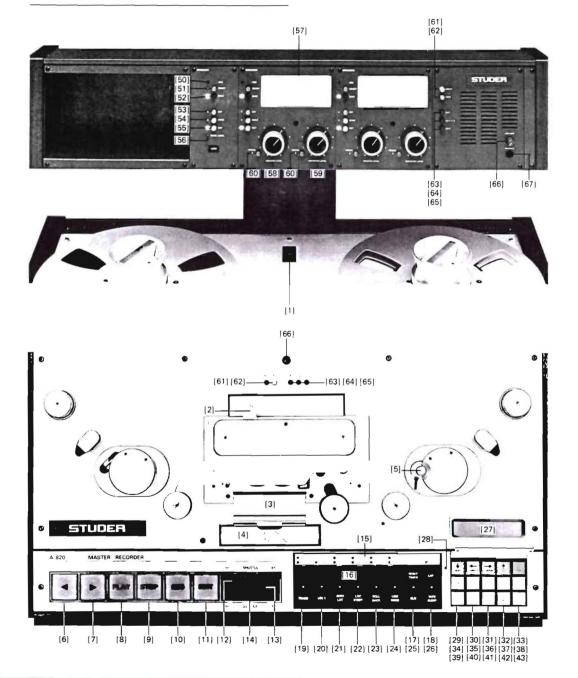


Fig. 2.4.8

2.5 OPERATING INSTRUCTIONS



There are four standard versions with differently programmed (and correspondingly labeled) key sets which in the following are referred to with the letters  $A\dots D$ .

#### Version A

Recorder types: A820-0.75, A820-2, A820-2 F, A820-1



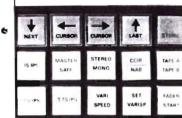


Fig. 2.5.1

#### Version B

Recorder types: A820-0.75 VU, A820-2/2 VU, A820-2 VU, A820-1 VU





Fig. 2.5.2

#### Version C

Recorder types: A820-2 TC, A820-2 TC VU



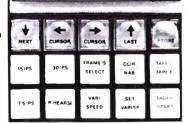
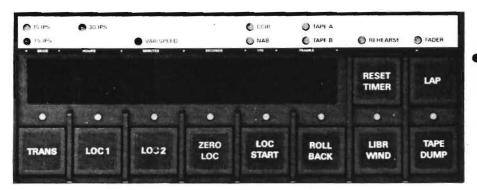


Fig. 2.5.3

#### Version D

Recorder type: A820-2/2-1/2" VU



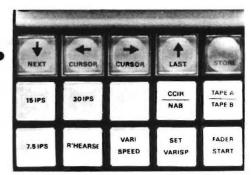


Fig. 2.5.4

A self-adhesive status indication label with the complete labeling is bypacked in the accessories. It can be used if the keys need to be assigned differently than has been programmed for the standard version.

After the existing status indication label has been removed, the still vacant lamp sockets can be fitted with the bypacked LEDs after which the new status indication label can be glued on and the recorder programmed as desired.

| 15 IPS   | 30 IPS   | ○ SAFE      | O STEREO | O CCIR | ○ TAPE A | O SPOT ERASE | REMOTE  |
|----------|----------|-------------|----------|--------|----------|--------------|---------|
| ○ 35 IDC | 3.75 IPS | O MADISDEED | O MONO   | O NAR  | ○ TAPE B | ○ REHEARSE   | ○ FADER |

Fig. 2.5.5

A820

#### 2.5.1 Controls

- Power switch
- Tape lift slider Head shield, can be closed or opened manually [3]
- Splicing block

- Main key field: [6] <: Rewind key [7] >: Fast forward key
- [8] PLAY: reproduce key
- STOP: has priority over all tape command keys and cancels a synchronizer loop.

  If STOP is pressed together with LOC START or LOC1...5, the stored locator addresses will be displayed.

Certain function keys (e.g. STEREO/MONO, CCIR/NAB, TAPE A/TAPE B, FRAME/S SELECT, OFFSET ON/OFF) can on-

- ly be operated if STOP is pressed simultaneously.
  [10] REC: record key, only effective together with PLAY.
  In reproduce mode it is possible to switch directly to record (RECORD B) by pressing REC, or by pressing PLAY + REC (RECORD A), depending on the programming.

  [11] EDIT: editing function, activates the SET/CUE wheel. or by pressing
- On the other hand, the position of the anti-scrape flutter roller is adjusted in a way that the tape can easily be gripped on the left-hand side of the head block
- [12] SHUTTLE wheel: permits positioning of the tape continuously variable speed. Center position = STOP, left-hand limit position = maximum SHUTTLE rewind right-hand limit position = maximum SHUTTLE fast forward speed.
- [13] SHUTTLE BAR: bar between SHUTTLE wheel [12] and SET/CUE wheel [14]. The spooling speed selected with the SHUTTLE wheel can be stored by pressing the SHUTTLE BAR.
- [14] SET/CUE wheel: multifunction wheel:

  In conjunction with EDIT [12] key: permits positioning of the tape; the tape moves in synchronism with the SET/CUE wheel. In the case of a time code version, the code is read generally with the right-hand code head and without delay compensation
  - as long as EDIT is active.
    In conjunction with the service display [27] and cursor keys [28] through [32]: either for "paging" In in the menu or as a potentiometer knob for adjust the audio and several tape transport paraing meters.
  - In conjunction with the VARISPEED function: knob for adjusting the desired tape speed.
  - In conjunction with the functions SET ADDRESS and SET TIMER for entering the locator addresses and for setting the tape counter display.

#### Secondary key field:

- [15] Display field for keys [33] through [42].
  [16] LED tape counter display. Real-time indication for all tape speeds in hours, minutes, seconds, and tenths of seconds; switchable to indication of a second counter with arbitrarily selectable reference.
- [17] RESET TIMER: reset button for tape counter display [16].
- [18] LAP: switch for changing over the (main) tape counter to a second counter with arbitrarily selectable reference. As long as the content of the second counter is indicated, the display shows an "L".
  [19] TRANS: The momentary tape address is stored (transferred) in the corresponding memory location. The
- actual tape address is stored by pressing one of the keys LOC1 through LOC5.

  Pressed together with a contract to the contract together the contract toget Pressed together with PLAY: reproduction in reverse direction.

- [20] LOC1: the address stored with [19] is searched automatically. The LOCATE address is displayed for as long as this key is pressed. The internal memory is referred to the tape position, i.e. if the tape counter is set to zero with the RESET TIMER button,
- the new LOCATE address is automatically calculated.
  [21] LOC ZERO (version A): the tape address correspond ing to the counter reading 0.00.00.0 is searched automatically. Is referred in normal tape counter mode as well as in LAP mode to the current zero position.
  - LOC2 (versions B, C, D): analogous to LOC1 [20].
- [22] LOC START (version A): automatically searches tape address at which the last PLAY command entered during standstill of the tape, followed followed by STOP (function LOC START STOP), PLAY (function LOC START PLAY) or RECORD (function LOC START REC). Default programming: LOC START PLAY.
- LOC ZERO (versions B, C, D): see [21].

  [23] ROLLBACK (version A): rewinds the tape by a programmable distance from 1 to 59 seconds. <u>Default</u> value: 15 sec. Followed by three programmable possibilities: STOP (ROLLBACK-A), PLAY (ROLLBACK-B) or RECORD (ROLLBACK-C).
- <u>Default</u>: ROLLBACK-B. LIBRARY WIND (version A): Reduced spooling speed LIBRARY for library tapes. Preselection key, activates spooling with reduced speed together with one of the spooling keys [6] or [7]. Pressing the LIBRARY WIND button a second time cancels the function. from 0.1 to 15 m/s in steps of Programmable
  - Default value 5 m/s.
     ROLLBACK (versions B, C, D): see [23]
- [25] CUT (version A): positions the tape address that is currently located in front of the reproduce head gap to the tape scissors.
- LIBRARY WIND (versions B, C, D): see [24].
   [26] TAPE DUMP: waste basket mode. Four programmable possibilities: TAPE DUMP-A, tape counter enabled; TAPE DUMP-B, tape counter disabled; TAPE DUMP-C, waste ba-sket mode is prepared by pressing the TAPE DUMP key, start with PLAY, interruption with STOP, tape counter enabled; TAPE DUMP-D, same as TAPE DUMP-C, tape counter disabled.
- [27] LCD service display; alphanumeric display for indicating the software status, speed deviations in varimode, error messages, programming of audio and tape transport parameters, etc.

Function and programming key field (below cover):

is possible by pressing STORE.

- [28] Switch for activating the programming key field (to protect the functions and parameters from being altered inadvertently this key field is controlled with an Allen key No. 2.5).
  - in the counterclockwise limit position: gramming enabled, screw in the clockwise limit position: programming disabled. Only the first six tape deck parameters (hub diameter left/right, reduced spooling speed, maximum spooling speed, ROLLBACK spooling speed, maximum spooling speed, ROLLBACK time, and maximum reel diameter) can be altered and stored. I.e. after switching the recorder off and on again, the previous audio parameters are loaded. The acknowledgement of receipt of an error messages

- [29] \/NEXT:
- keys for paging through the menu and for moving the cursor on the
- [30] CURSOR/€: [31] CURSOR/≯: service display
- [32] 1/LAST:
- [33] STORE: button for storing a changed audio or tape transport parameter, for changing over a that is not assigned to a specific key, for function reprogramming a push button function (when pressed together with the corresponding button) or for acknowledging receipt of an error message.
- [34] 15 IPS: speed selection (15 ips, 38 cm/s).
  [35] MASTER SAFE (version A): record inhibition for recorders without SAFE/READY switch.
  - 30 IPS (versions B, C,D): speed selection (30 ips, 76 cm/s)
- [36] STEREO/MONO (versions A, B): Stereo/mono selector
   (only together with STOP!).
   FRAMES/S SELECT (only version C): selection of time
  - code type (24/25/29.97/30 frames/s). Only together with STOP!
  - (version D): "no function" key, key not assigned.
- [37] CCIR-NAB: Selector for equalization standard (only together with STOP!).
  [38] TAPE A TAPE B: selector for two tape types (only
- together with STOP!).
- [39] 7.5 IPS: speed selection (7.5 ips, 19 cm/s).
- 3.75 IPS (versions A, (3.75 ips, 9.5 cm/s). [40] • 3.75 B): speed selection
  - REHEARSE (versions C. D): simulation of electronic editing. After record mode has been activated, the with SYNC status are automatically channels ched to INPUT (Prerequisite: function IN-OUT DEL = refer to 2.6.3).
- [41] VARISP. ON/OFF: on/off switch for variable tape
- [42] SET VARISP : enables VARISPEED input through SET/CUE wheel.
- [43] FADER: disables the local keyboard, fader start circuit is given prioritity. Four programmable possibi-
  - FADER A: FADER START without enable key. After FADER START has been performed, the local keyboard FADER is disabled and the built-in monitor speaker (but not the headphones socket) is muted. When the fader is restored (= no voltage on the remote control the recorder switches to STOP, muting of the monitor speaker is only cancelled when the tape
  - stands ... FADER B: FADE... V) local FADER START with enable key (FADER START keyboard remains active when FADER READY), local keyboard remains active when start is enabled. After FADER START has been per formed, the local keyboard is disabled; default programming.
  - same as FADER START B, however local keyboard is disabled when FADER START is enabled.

    FADER D: FADER START with enable key (FADER START
  - READY), the local keyboard remains active even when FADER START is enabled. After FADER START has been performed, the built-in monitor speaker (however not the headphones socket) is muted. If after FADER has been performed one of the buttons of the START local keyboard is pressed in PLAY mode, not enabled, actuation of the FADER switch does not change the operating state of the tape recorder.

    If the tape should be torn during FADER START mode, the tape transport has to be reserved.
  - trasnport has to be reactivated with the FADER switch.
- Controls in the overbridge (if configured):
- [50] REC: record indicator lamp; turned on when the chan-nel is switched to record.

- [51] SAFE: channel disabled for recording.
- [52] READY: channel ready for recording. [53] INP: input signal is connected to the output. [54] SYNC: sync signal is connected to the output
- [55] REP: reproduce signal is connected to the output.
- [56] CODE LEVEL (on code channel control only): time code indication; turns on when the time code is reproduced from the tape or when the time code level on the input of the recorder is large enough (depending on the setting of the input selector INP/SYNC/REP).
- [57] Output meter: VU meter or PPM instrument, internally switchable.
- [58] RECORD LEVEL: level control for record mode.
- [59] REPRO/SYNC LEVEL: level control for reproduce or sync reproduce mode.
- [60] UNCAL: activates the level control. Switched off: calibrated line level.

Controls for the monitor speaker (in overbridge or in the tape transport cover):

- [61] INPUT: the input signal of the recorder can be heard via the monitor speaker.
- the output signal of the recorder can be heard via the monitor speaker. [63] CH1: Channel 1 is connected to the monitor speaker.
- [64] 1+2/CUE: the sum of both channels (or the CUE channel, for TC versions only) is connected to the monitor speaker. Function programmable with jumpers.

  [65] CH2: Channel 2 is connected to the monitor speaker.
- [66] VOLUME: volume control for the monitor speaker.
- [67] PHONES: headphones socket (on versions with over-bridge = adjacent to the monitor speaker, on versions without overbridge = on the left-hand side above the flap of the amplifier bay).

#### 2.5.2 Power switch

#### CAUTION!

Before switching on the recorder for the first time, check that the setting of the AC voltage selector on the back of the recorder matches the local line voltage. If the sett-ing of the AC voltage selector is changed, check also the rating of the power fuse. The power switch is located at the top edge of the tape transport cover

The last operating state is automatically reestablished and indicated after the power is switched on.

Exceptions: the recorder always enters STOP mode (the STOP button flashes if no tape is mounted or if the tape is mounted loosely). Recorders equipped with a SAFE/READY switch are switched to SAFE; the function MASTER SAFE is not affected.

When the recorder is switched on, the microprocessor automatically tests the main functions; any error is indicated on the service display.

#### 2.5.3 Pilot lamps

i.e. while the processor is During the power-on sequence, being started, certain keys and indicator lamps may turn on, i.e. also READY and REC. However, the record function is electronically inhibited during this time. After power-on the following keys or pilot lamps (LEDs) turn on and indicate the current operating state of the recorder:

- STOP: the STOP function is active. If this key flashes this means that both tape tension sensors are in their limit positions (no tape, or tape mounted loosely).
   CCIR or NAB: indication of the selected equalization. If this key flashes
- STEREO or MONO
- TAPE A or TAPE B: indication of the selected tape type.
- Tape speed: indication of the selected tape speed, e.g. 15 or 7.5 ips (38 or 19 cm/s). Tape speed:

Depending on the configuration of the tape recorder, the following may also turn on:

- Level meters On the track selector: SAFE
- UNCAL (if the button is pressed).
   On the output selector, the selected signal (INP, SYNC, or REC) connected to the output is indicated.

For a few seconds, the service display indicates the software status of the tape recorder (creation date of the master software, calendar week / year), followed by a list of options with which the recorder can be equipped plus possible error messages in plain text, or the message "no errors detected" and subsequently the current machine status (line level. for TC versions also offset and selected time code type).

On the right above the amplifier bay, six green LEDs indicate that the supply voltages are available (+5.6 V, +24 V, +15 V, -15 V, +26 V, -26 V). The three secondary fuses are also checked. If they are in order, one green LED each (+SUPPLIES, -SUPPLIES, CAP./AUX) is turned on.

#### 2.5.4 Mounting the tape

Adapters for three-pronged (ciné) reels and for DIN hubs are engaged in the spindle mounting; adapters for NAB reels or hubs are inserted in the spindle mounting a secured by pressing on the round button in the center the adapter. All adapters can be released by light released by lightly pressing against the rim of the spindle.

Three-pronged reel with flange: (DIN 45514, 45517)

Mount adapter for three-pronged reels. Mount reels on the spindles. Pull out the three-pronged guide and lock it by rotating it 60°.

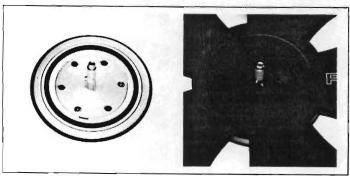


Fig. 2.5.6

#### NAB reel:

Mount NAB adapter. LOCK THE ADAPTERS BY PRESSING THE ROUND BUTTON IN THE CENTER! Use NAB reel or, if self-supporting pancakes are used, place an NAB hub on the adapter and pancakes are used, place an NAB hub on the adapter and turn the upper section of the adapter clockwise until it engages.

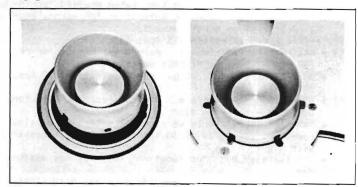


Fig. 2.5.7

#### Self-supporting pancakes:

(Hub according to DIN 45515)

Mount DIN adapter, place pancake platters on the adapters and engage the driving lugs of the platter in the holes of the adapter.

the pancake and the pancake platter in a way that the white driving lugs engage. Lift the flap and rotate it by 90° until it rests on the white driving lugs.

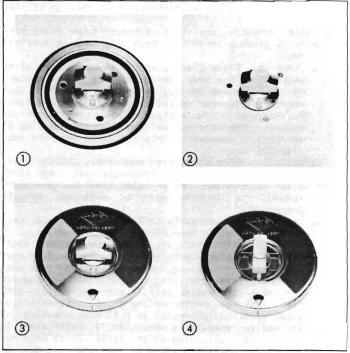


Fig. 2.5.8

#### Threading the tape

Important!

The shield of the soundheads must be opened before the tape is threaded.



Fig. 2.5.9

Thread the tape as shown in the illustration. The leading end of the tape is placed on the empty reel and secured with a few counterclockwise rotations. As soon as the tape is tensioned, the tape transport starts up and the STOP key flashes. When one of the tape command keys is pressed, the tape tension circuit is enabled and the A820 is ready for operation.

Set tape counter to zero by pressing the RESET TIMER key. Also raise the shield over the soundheads if necessary.

#### 2.5.5 Tape speeds

Up to four tape speeds are available; various versions are programmed for the three most frequently used tape speeds (e.g. the lowest tape speed is not programmed for the time code versions, because time code operation with 3.75 ips is not possible).

#### 2.5.6 Play mode

The recorder is switched to PLAY mode either with the built-in PLAY key, the PLAY key on a remote control, or a fader start device. The PLAY button turns on.

The PLAY function can be cancelled by pressing the STOP key.

If PLAY is pressed while a recording is in progress, the recorder switches to PLAY mode immediately. If PLAY is pressed during spooling, braking will be initiated, the PLAY functions is preselected, and the PLAY key flashes. As soon as the tape has reached the nominal speed, the recorder switches automatically to reproduce mode and the light in the PLAY key is steady.

#### 2.5.7 Reverse play

A tape location can be searched by switching the recorder to REVERSE PLAY by pressing TRANS and PLAY together. If programmed, the same function is activated by the REVERSE PLAY key.

From reverse play mode it is possible to switch directly to normal reproduction, spooling, EDIT, or one of the locator functions.

#### 2.5.8 Varispeed control

With the built-in varispeed control the nominal tape speed can be varied by  $\pm 7.5$  semitones.

The speed change can be preselected with the SET VARISP key and the SET/CUE wheel (the latter functions as a potentiometer), without influencing the current nominal speed. The preselected speed is indicated on the service display, depending on the programming, either in semitones, in percent of the nominal speed, or as the actual tape speed value in inches per second (ips).

The VARISPEED button is pressed to switch from the nominal speed to the changed speed – the VARISPEED lamp above the tape counter flashes.

If the functions SET VARISP and VARISPEED are active at the same time, the speed change is implemented immediately

(with the SET/CUE wheel). The result can be heard directly during playback.

The time-delay compensation for record drop-in and drop-out (refer to 2.5.9) is adjusted for nominal speed only. When recording in VARISPEED mode corresponding displacements occur.

#### 2.5.9 Recording

The A820 is put into record mode by simultaneously pressing PLAY and REC. The lamps above these two keys turn on.

If PLAY and REC are pressed during spooling, braking of the tape is initiated. The record function is preselected and the REC and PLAY keys flash. As soon as the tape has reached the nominal speed, the A820 automatically enters record mode and the illumination of the two keys is steady.

It is possible to switch from record mode directly to spooling or a locator function.

#### Recorders with SAFE/READY keys:

Recording on the corresponding channel can be disabled by pressing the SAFE key. The yellow SAFE lamp turns on. When PLAY and REC are subsequently pressed, the tape transport starts, however, the audio signals recorded on the the track protected with SAFE are retained and can be monitored (REP or SYNC).

In order to prepare a channel for a recording, the corresponding READY key must be pressed. The green pilot lamp turns on. When the recording function is activated with PLAY and REC, the red REC lamp turns on and signals that recording mode has been activated.

During a recording the channels can be protected directly with SAFE. In order to reenable them for recording, the READY buttons must be pressed first; after the READY lamps turn on, either the PLAY and the REC keys or only the REC key must be pressed, depending on the internal programming.

On 2-channel recorders the internal programming determines whether the channel mode selectors work on both channels in parallel or separately for each channel (function CH CONTR PAR/INDIV).

#### Recorders with MASTER SAFE key:

The MASTER SAFE function is used as erase protection for recorders without SAFE/READY keys. It also can be programmed on recorders with SAFE/READY keys. Then it is an erase protection with top priority. The recorder cannot be prepared for recording as long as MASTER SAFE is active.

#### Drop-in:

Click-free change-over from reproduction or sync reproduction to recording is possible. Two methods can be implemented through internal programming: PLAY and REC must be pressed concurrently (RECORD A), or the recording function is enabled by REC alone (RECORD B). Depending on the internal programming, the erase head and the record head are either switched on concurrently or the record head switches on with a speed-dependent delay so that the drop-in occurs exactly at the same location (function IN-OUT DEL Y/N).

#### Drop-out from record mode:

Click-free change-over from record mode to reproduction or sync reproduction is possible with the PLAY key. Depending on the internal programming, the erase and the record are either switched off concurrently or the record head switches off with a speed-dependent delay so that the drop-out occurs exactly at the same tape location (function IN-OUT DEL. Y/N).

Drop-out with STOP or SAFE always switches record and erase heads off concurrently.

Overlapping drop-in, mechanical (FADE IN/FADE OUT):

If, for example, an applause is to be faded in at the end of a production, the tape can be lifted off the record head and the erase head with the tape lift slider [2]. The A820 is subsequently started in record mode. When the slider is slowly released, the tape contacts the record head first; the new modulation is added to the existing signals (e.g. end of a music selection). After the music selection has faded out, the tape lift slider is to be released completely so that the tape comes in contact with the erase head. Unwanted noise will be erased and only the applause is recorded.

#### 2.5.10 Sync reproduction

Sync reproduction is activated by pressing the SYNC key. In this mode the tape induces an audio signal in the record head. This signal is amplified and equalized in the reproduce amplifier. Accurate drop-in is possible in sync reproduction mode since there is no speed-dependent time offset between the record and the reproduce head.

Sync reproduction is not advisable at a speed of 3.75 ips (quality generally inadequate!). For this reason all sync audio parameters for this speed have been set to 00. However, it is still possible to calibrate the tape recorder also for 3.75 ips and sync reproduction if the user is willing to accept the degraded quality.

The reproduce bandwidth in sync mode is limited to approximately 12 kHz. For special mixdowns the bandwidth can be extended to 20 kHz (refer to Section 4.9.2). At frequencies above 12 kHz, strong cross talk from the recording channel to the sync reproduction channel must, however, be expected.

#### Sync preselection:

Sync reproduction mode can be preselected on a channel switched to record mode. If the SYNC button is pressed during a recording, the output of the corresponding channel is connected to the input (INP). This channel is automatically switched to sync reproduction when the recording mode is canceled (PLAY, SAFE, STOP).

#### 2.5.11 Spooling mode

Fast forward or rewind is activated by pressing > and <. The recorder spools with the programmed speed (max. 15 m/s). The corresponding pilot lamp turns on.

The spooling functions are canceled by STOP, PLAY, REC+PLAY, SHUTTLE, LOC functions, CUE, and by spooling in the opposite direction.

Direct change-over from rewind to fast forward and vice versa or from playback or recording to spooling is possible.

It is possible to switch from spooling mode directly to record and play. The pilot lamp of the preselected function flashes, the tape is braked, and the new function is activated as soon as the tape travels at the nominal speed.

#### Tape lift off:

During spooling the tape is automatically lifted off the soundheads in order to reduce the wear on the soundheads.

The tape transport assembly can be engaged by pressing the LIFTER button.  $% \left\{ 1\right\} =\left\{ 1\right\} =$ 

#### CAUTION !!

DURING FAST WIND OPERATIONS THE CONSOLE TILTING MECHANISM MUST NOT BE ACTUATED - TAPE, REELS, REEL ADAPTORS, AND TAPE TRANSPORT COVER MAY BE SERIOUSLY DAMAGED AS A RESULT OF THE HIGH GYRO FORCES!!

#### 2.5.12 LIBRARY WIND (reduced spooling speed)

The reduced spooling speed available with the LIBRARY WIND function is intended for tapes that are to be stored in a library. The speed ranges between 0.1 and 15 m/s and can be programmed in increments of 0.1 m/s (default: 5 m/s). Spooling with reduced speed is initiated by pressing the LIBRARY WIND key and one of the spooling keys < or >.

This function is stopped by pressing LIBRARY WIND a second time.

#### 2.5.13 Stop mode

The STOP key has top priority and cancels all other operating modes such as reproduction, recording, spooling, and autolocator. After this key has been pressed, the STOP pilot lamp turns on and tape braking is initiated; the STOP key flashes until the tape stands still after which the illumination of the STOP key becomes steady.

when the tape stands still the tape tension control loop, however, is active (exception: tape torn or unthreaded). This makes it easier to shuttle the tape by hand for editing purposes.

Any new operating mode entered while the tape is being decelerated will be stored and activated as soon as the tape reaches the nominal speed.

If STOP is pressed and (while STOP is held) also one of the keys LOC1...LOC5, the corresponding locator addresses are displayed on the tape counter.

Some of the function keys can only be used if they are pressed together with STOP (e.g. tape type selection (TAPE A/TAPE B), equalization selection (CCIR/NAB), mono/ stereo changeover (STEREO/MONO), switchover of the time code standard (FRAMES/S and OFFSET ON/OFF)).

#### 2.5.14 Locator

The following modes are supported by the Locator function:

- ZERO LOC: zerolocator. This key initiates a rewind (or fast forward) to the tape address that corresponds to the counter reading 0.00.00.0, as well for the main or the second counter display.
- LOC START (programmable): this key initiates a rewind (or fast forward) to the tape address at which the last play command was entered during standstill of the tape. Depending on the programming either STOP (function LOC START STOP), reproduce (function LOC START PLAY) or recording (function LOC START REC) is activated. Default programming: LOC START PLAY.
- LOC1...LOC5 (programmable): transfer locator. Up to five tape positions can be stored and automatically searched in spooling mode by pressing one of these keys.

The locate procedure can be interrupted with: <, >, STOP, EDIT, or 2 x PLAY.

REGUITE

A820

reached.

The display is switched back to normal mode by pressing the LAP key a second time. The "L" in the first position disappears.

E 2/14

Locator addresses are referred to the tape positions and are preserved when switching to LAP mode (and back to normal tape counter mode).

2.5.17 Remote controls

The following functions can be activated from the parallel remote control: reproduction, recording, spooling, stop, RESET TIMER, ZERO LOC, LOC START, RECAP (rewind for as long as this key is pressed, followed by PLAY) or LIFTER (canceling of the tape lift during spooling), and FADER (FADER START ready).

It is possible to assign all the functions to the keys of the serial remote control that can be programmed for the local keyboard, but independent of the programming of the local keyboard. I.e. on the serial remote control there may be programmed different key functions as on the local keyboard. In addition the serial remote control features a tape counter and a SHUTTLE wheel. The programming of the key functions is executed in the same way as for the local keyboard.

- Operation with programmable function REMOTE A: When the REMOTE key is pressed, the corresponding pilot lamp turns on and the local keyboard is disabled. When the REMOTE key is pressed a second time, the local keyboard is reenabled and the pilot lamp turns off. In the latter condition the keys on the remote control have no effect.
- Operation with programmable function REMOTE B: When the REMOTE key is pressed, the corresponding pilot lamp turns on; the remote control buttons and the local keys have the equal priority. When the REMOTE key is pressed a second time, only the local keys are active and the pilot lamp turns off. In the latter condition the keys on the remote control have no effect.
- Operation without the functions REMOTE A and REMOTE B: The REMOTE LED always turned on, the keys on the local and on the remote keyboards are always active.

With the fader start circuit the tape recorder can be switched to reproduction from the remote control device. The FADER START mode can be prepared (FADER START READY) by a switch that interconnects contact 6 (signal SR-FADRY) and contact 1 (ground). Applying an AC or DC voltage from 5 V to 24 V to contacts 11 and 12 switches the tape recorder to reproduce mode. This preparation can also be made with the programmable FADER key on the local keyboard or the serial remote control, or with the FADER key on the parallel remote control. The same function as is related to the local FADER key - FADER A, B, C, or D - is activated.

■ Operation with the programmable function FADER A:
FADER START without preparation key. After the FADER
START has been performed, the local and the remote control keyboards are disabled; the built-in monitor speaker (but not the headphones socket) is muted. When the
fader is retracted (fader switch opens), the recorder is
switched to STOP, however, muting of the monitor speaker
is only canceled when the tape has come to a standstill.

on. As soon as the exact position has been found, press one of the corresponding LOC keys. The TRANS pilot lamp turns off to acknowledge that the address has been transferred into memory. The TRANS key must be pressed again before a new address can be stored.

Reading out an address:

During a LOC operation: by pressing the corresponding LOC button again. In STOP mode: press STOP and corresponding LOC button

Search the desired tape address and press the TRANS key

address can be stored as long as the TRANS pilot lamp is

when the approximate position has been

#### PLAY or REC preselection:

If the PLAY key is pressed (or PLAY + REC) while a locate function is in progress (ZERO LOC, LOC START, LOC1...5), the recorder switches automatically to reproduction or to recording after the corresponding tape address has been found.

All locate addresses are retained in memory even after the recorder has been switched off.

#### CAUTION!

Since the stored tape addresses relate to the actual tape positions, any undesirable offsets can occur if the RESET TIMER button is pressed inadvertently!

#### 2.5.15 Tape counter

The electronic tape counter always displays the real time in hours, minutes, seconds, and tenths of seconds, regardless of the selected nominal speed.

The display capacity is -9~h~59~min~59.9~s to 23 h 59 min 59.9 s. Values outside the display capacity are indicated with "U" (underflow) and "O" (overflow) in the tens-of-hours position; e.g.  $^{0}4.00.00.0$  or  $^{1}9.59.58.0$ . Fractional tenths of seconds are rounded to the nearest second. The timer can be reset to 0.00.00.0 by pressing the RESET TIMER key.

When the end of the tape is reached or if a tape tears, the tape counter is automatically stopped. In dump edit mode (TAPE DUMP) the tape counter is either stopped automatically or it continues to count, depending on which of the four TAPE DUMP modes has been programmed (standard programming: TAPE DUMP A, the counter continues to count with the information obtained from the capstan motor tacho).

#### 2.5.16 LAP mode

By pressing the LAP key the tape counter display can be switched over from the main counter to indication of a second tape counter with arbitrarily selectable reference. An "L" appears in the first position of the display.

The second counter can be set to zero at any tape address (with RESET TIMER button) and can, for example, be used for measuring the exact playing time of a selection without having to compute the difference between the starting and the ending time.

- Operation with the programmable function FADER B: FADER START with enable key (FADER START READY). The local and the remote control keyboards are also active when FADER START is enabled. After the fader start has been performed, the local keyboard is blocked, = default programming.
- Operation with the programmable function FADER C: Same as FADER START B, but in this function the local and the remote control keyboards are disabled when FADER START is enabled.
- Operation with the programmable function FADER D: FADER START with enable button (FADER START READY), the local and the remote control keyboard are also active when FADER START is enabled. After the FADER START has been performed, the built-in monitor speaker (but not the headphones socket) is muted. Muting of the monitor speaker is canceled, if, after FADER START, one of the buttons of the local or remote keyboard is pressed. If FADER START is not enabled, actuation of the fader switch does not change the operating state of the recorder.

## 2.5.18 VU-meter panel

The level indicator can be switched internally to function as a peak program meter (PPM) or a VU-meter.

UNCAL: when this key is pressed, the corresponding level control is activated and the pilot lamp turns on. When the UNCAL key is released, the level control is bypassed and the input or the output level is set to line level.

#### Output selector:

INP: connects the input signal to the output and to the VU-meter of the recorder.

SYNC: connects the sync reproduction signal (from the record head) to the output and the VU-meter of the recorder. This mode can be preselected for the record function. (As long as the corresponding channel is in record mode it is switched to INPUT because reproduction with the record head is not feasible during a recording. SYNC reproduction is automatically activated as soon as the channel is switched to READY or SAFE).

REP: connects the reproduce signal to the output and the VU-meter of the recorder.

Source/tape monitoring can be conveniently activated during recording by pressing the INP and REP keys.

INP, SYNC and REP always cancel each other.

In 2-channel models the operating procedure is determined by internal programming, i.e. it affects either both channels together or each individual channel (function CH CONTR PAR/INDIV).

#### 2.5.19 Monitor speaker

In models without overbridge, the monitor speaker is built into the tape transport cover, in models with overbridge it is built into the monitor panel. On models with overbridge the headphones socket is located on the monitor panel, on models without overbridge it is located on the left above the amplifier bay.

With the (mutually releasing) switches INPUT and TAPE the operator can switch between the input and the output of the recorder (before the corresponding level controls).

Monitoring of channel 1 (CH 1) and channel 2 (CH 2) is possible. In addition either the sum of both channels or the CUE channel (time code) can be monitored (1+2/CUE), depending on the position of the jumpers on the monitor amplifier. Refer to section 4.9.6. When the jumpers on the monitor amplifier are plugged into the CUE position, the sum of both channels can still be monitored by simultaneously pressing the keys CH1 and CH2.

The volume can be adjusted with the VOLUME knob.

## 2.5.20 Mono/stereo switch (option)

Stereo recorders can be configured with a mono/stereo switch. This switch is also retrofittable. The last operating mode will be automatically reestablished and indicated after the recorder is switched on.

Simultaneous pressing of STOP and STEREO/MONO switches from stereo to mono mode and vice versa.

If the mono/stereo module is not installed, the corresponding pilot lamps STEREO and MONO remain dark.

#### 2.5.21 Test generator (option)

The controls for the test generator are located on the front edge of the test generator module. For operating the generator it is necessary to open the flap of the amplifier bay!

The test generator is switched on by pressing the upper key (REF lamp turns on, i.e. the reference frequency, normally 1 kHz, is selected). Repetitive pressing of this key changes over the frequencies as follows:
- 60 Hz - 125 Hz - REF - 10 kHz - 16 kHz - OFF - REF -60 Hz - etc

With the lower button the generator level can be switched over from nominal level to nominal level  $-10~\mathrm{dB}$ . If  $-10~\mathrm{dB}$ over from nominal level to nominal level -10 dB. If -10 dB is selected, the gain in the reproduce branch of the mono/stereo switch is automatically boosted by 10 dB; this means that the reference value of the VU-meter display is again 0 dB for measurements with tape.

The lower button is only enabled if the test generator has previously been switched on with the upper button. After switching the generator off and on again with the upper button always nominal level is present at its output

button always nominal level is present at its output.

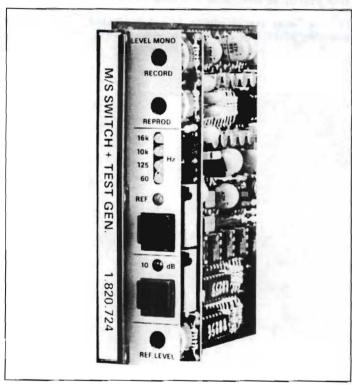


Fig. 2.5.10

#### 2 5 22 Time code channel (only for TC versions)

#### Time code recording

Press the READY button on the time code channel control unit; the READY lamp turns on. Start the A820 in record mode with REC and PLAY; the REC lamp turns on. Or, while a recording is in progress, press READY and, depending on the programming, press REC + PLAY or just REC.

#### Time code reproduction

Press REP or SYNC and start the A820 in record mode by pressing PLAY.

Depending on the position of the input selector the green CODE LEVEL lamp turns on if a time code signal is available on the TC line input (INPUT position) or read the tape (REP or SYNC), respectively.

#### 2.5.23 Editing, tape splicing

#### Searching a tape location with spooling:

If the desired tape address is approximatively known (e.g. the beginning or the end of a selection), it can be approached with the spooling function. Press the programmable LIFTER key so that the tape lift pin is pushed behind the soundheads and the modulation can be cued. As soon as the cue point is reached, the tape can be fine-positioned by repeatedly pressing < and >, by actuating the SHUTTLE wheel or by pressing EDIT and turning the SET/CUE wheel. Press STOP and bring the tape by hand in the exact splicing position by carefully rotating one of the two reel flanges by hand. the two reel flanges by hand.

#### Search with PLAY:

If certain segments with unknown locations are to be out of a program, they can be searched with normal PLAY mode. When one of these segments has been located, press the STOP key and position the tape into the correct cutting position by carefully rotating one of the two reel flanges by hand.

#### Search with autolocator

The tape address 0.00.000 can be automatically searched with the spooling function. The start of a program is programmatically stored in memory and can be automatically searched with the LOC START key if the recording has not been interrupted.

While a program is being recorded, 1 to 5 tape addresses can be stored directly, depending on the programming of the recorder, by pressing TRANS and LOC1 (...5) in the can be stored directly, depending on the programming of the recorder, by pressing TRANS and LOC1 (...5) in the desired tape position. When the corresponding LOC button is pressed, the desired tape address is automatically is pressed, the desired tape address is automatical, searched; the exact editing position can now be adjusted manually.

## Cutting with built-in tape scissors (only 1/4" versions)

Pressing the programmable CUT key positions the location in which the tape is to be cut exactly to the built-in scissors. The tape is cut by pressing a button. By pressing the TAPE DUMP key a segment of tape that is to be discarded can be played into the waste basket (see TAPE DUMP mode)

#### Cutting at the reproduce head

With magnetically neutral scissors that tape can be easily lifted off the reproduce head and cut in front of the head gap (center of head face).

#### Marking the tape, cutting in splicing block

Mark the center of the reproduce head face on the tape with the aid of a soft pencil or a grease pencil.

The  $\,$  marked position is placed into the splicing block (in front of the headblock) and cut with a razor blade.

#### Splicing the tape

Place the two tape segments with the marked side facing upward into the splicing block. Butt the two ends together (without overlapping!) and secure it with an approximately 20 mm long 1/4" (or 1/2", resp.) wide piece of adhesive

#### 2.5.24 Dump edit mode

In dump edit mode the right-hand spooling motor is switched off. Unwanted tape segments can be played into the waste basket by activating this mode.

When the TAPE DUMP key is pressed, the recorder switches either to PLAY, or TAPE DUMP mode is preselected — see below. The right-hand spooling motor remains switched off. Four versions of this mode are available:

- TAPE DUMP A (<u>default</u> programming for all four standard versions): tape counter active, function to be canceled with STOP or by pressing TAPE DUMP again.

  TAPE DUMP B: same as TAPE DUMP A, however the tape counter is blocked. **TAPE**
- with STOP or by pressing TAPE DUMP A, however the tape counter is blocked.

  TAPE DUMP C: pressing TAPE DUMP preselects dump edit mode; activation by pressing PLAY, interruption only in STOP mode, by pressing TAPE DUMP again.

  TAPE DUMP D: same as TAPE DUMP C, however the tape
- counter is blocked.

#### Winding up a loose piece of tape

In the event that too much tape is played into the waste basket in tape dump mode it is not necessary to laboriously rewind the tape by hand. Simply thread the tape (or let it be threaded) as illustrated in Fig. 2.5.11 and carefully tension the loose tape end with two fingers. Keep the rewind key pressed: the left-hand (supply) reel turns clockwise and rewinds the tape. This operation can be canceled by releasing the REWIND key.

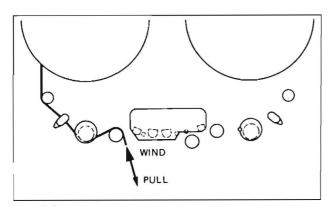


Fig. 2.5.11

The torque of the motor is limited and controlled in such a way that the tape can be easily braked by hand. If you let loose of the tape end, the motor turns very slowly. Its speed can be increased by lightly pulling on the tape. you

The same applies analogously to winding a piece of tape with the right-hand (take-up) motor. The only thing that is important is that the tape segment to be wound is threaded around the tape tension sensor and its adjacent guide rollers to ensure that the tape tension control loop can function correctly

#### Playing a dumped tape segment

After some editing work it may happen that many individual tape segments have been dumped into the waste basket but the operator is not sure whether or not they contain any usable audio material. Such tape sections can easily be played with the A82O without having to be spliced first and wound onto a reel.

Procedure: Press EDIT button, the tape transport and the pinch roller start up. The EDIT button turns on, STOP flashes. Thread the tape segment according to Fig. 2.5.12.

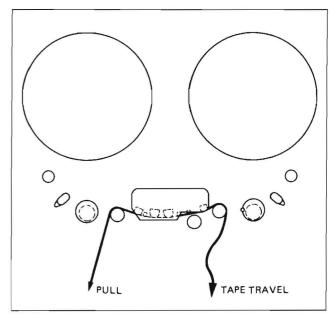
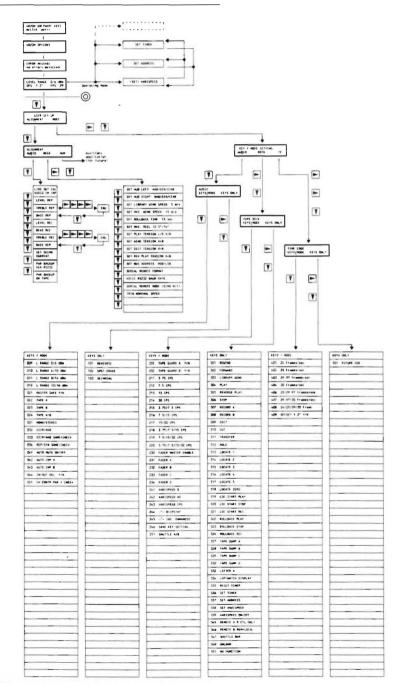


Fig. 2.5.12

With your left hand lightly tension the tape segment on the left-hand side of the headblock. The tape is cued by running over the reproduce head. If a small amount of backtension is produced with the left hand, the contact between tape and head is improved (better reproduction) and the tape is cleaned from possible dust particles that many have been picked up in the waste basket. may have been picked up in the waste basket.

Pressing EDIT inte function press STOP. interrupts the procedure. To cancel the

#### STATUS TREE DIAGRAM (enlarged view at the end of this Section)



#### 2.6 SOFT KEYS

Except for the four blue keys and the red key of the function and programming key field below the hinged cover, all operating keys of the A820 tape recorder can be assigned to any of some 100 possible functions or operating modes. There are two types of functions/operating modes, referred to as "KEYS ONLY" or "K", and "KEYS/MODE" or "K/". "KEYS ONLY" stands for functions to be operated only if assigned to a key. Operating modes labeled "KEYS/MODE" may be activated not only by a key but also by the programming key field without a key being allocated to the operating mode.

This function assignment procedure is simplified by the service display [27] (alphanumeric LC display, on the right front of the tape transport) as well as by the top-down tree structure diagram illustrated on the opposite page.

This diagram consists of blocks and setting positions

Programming examples: see 2.6.4 .

Caution: Programming is not possible if the recorder is switched to VARISPEED mode!

After the recorder has been switched on, the first four (or possibly five) blocks appear consecutively on the service display for a few seconds each:

A82DM SOFTWARE VERS MASTER: WW/YY

Creation date of the software of the MASTER MPU, calendar week/year.

A820M OPTIONS

List of the options with which the recorder has been configured.

If this message is displayed, the standard audio parameters are loaded after a RAM error. These parameters can differ slightly from the recorder-specific parameters. Operation of the recorder is possible, certain deviations from the optimum specifications must, however, be expected. If the recorder-specific parameters have been written down or stored on tape they can be reentered or loaded, respectively.

ERROR LIST: EXX

Possible error messages resulting from the automatic test, either in plain text or the message "no errors detected", and

L RANGE D/6 dBm OFS: . " FPS:

Line level with which the recorder is operating. The second line of the display is only used if the recorder is equipped with a time code headblock assembly; OFS = offset between time code and audio channel in inches, FPS = number of frames per second.

The sequence stops here. In normal operating mode, the above four (or five) blocks can be retrieved by pressing f/LAST.

If the programming enable switch [28] is closed (actuated with Allen screwdriver No. 2.5, clockwise limit position), the STORE key is disabled for certain operations. E.g. the audio parameters can be modified but not stored, after switching the recorder off and on again the previous parameters are written into the registers of the audio amplifiers. The following tape deck parameters can be modified and stored: Hub diameter left/right, reduced and maximum spooling speed, ROLLBACK time, and maximum reel diameter. The acknowledgement of error messages (if any) is also permitted if the programming enable switch is

Reprogramming of the keys is not possible when the switch is in the disable position; should any attempt be made, the message "program mode not enabled" will appear on the service display.

Opening the programming enable switch: turn the screw 2...3 turns counterclockwise.

With the keys \#/NEXT, </CURSOR, >/CURSOR, and \frac{1}{LAST it is possible to move up and down in the tree diagram. In branching points the cursor is positioned under the desired menu.

2.6.1 Numbering of the keys

The operating keyboard is designed as a matrix consisting of five rows of up to 10 keys.

Numbering:



Fig. 2.6.1

2.6.2 Available functions

|            |                                  | _          |      |         |        |              |
|------------|----------------------------------|------------|------|---------|--------|--------------|
| [          |                                  |            | Stan | dard p  | rogram | ming:        |
| No.        | Function                         |            |      | of key  |        |              |
|            |                                  | Тур        | Α    | В       | С      | D            |
| 009        | L RANGE O/ 6 dBm Y/N             | K/M        |      |         |        |              |
| 010        | L RANGE 4/10 dBm Y/N             | K/M        |      |         |        |              |
| 011        | L RANGE 8/14 dBm Y/N             | K/M        |      |         |        |              |
| 012        | L RANGE 10/16 dBm Y/N            | K/M        |      |         |        |              |
| 021        | MASTER SAFE Y/N                  | K/M        | 36   |         |        | <b></b>      |
| 022        | TAPE A                           | K/M        |      |         |        |              |
| 023        | TAPE B                           | K/M        |      | <b></b> |        |              |
| 024        | TAPE A/B                         | K/M        |      | 33      | 33     | 33           |
| 031        | MONO/STEREO                      | K/M        | 35   | 35      |        |              |
| 032        | CCIR/NAB                         | K/M        | 34   | 34      | 34     | 34           |
| 033        | CCIR/NAB SAME/INDIV              | K/M        |      |         |        | <del>-</del> |
| 034        | REP/SYN SAME/INDIV               | K/M        |      |         |        |              |
| 041        | AUTO MUTE ON/OFF                 | K/M        |      |         |        |              |
| 042        | AUTO INP A                       | K/M        |      |         |        |              |
| 043        | AUTO INP B                       | K/M        |      |         |        |              |
| 044        | IN-OUT DEL. Y/N                  | K/M        |      |         |        |              |
| 051        | CH CONTR PAR/INDIV               | K/M        |      |         |        |              |
| 101        | REHEARSE                         | K          |      |         | 26     | 26           |
| 102        | SPOT ERASE                       | K          |      |         |        |              |
| 103        | SKIMMING                         | K          |      |         |        |              |
| 201        | TAPE GUARD A NO/RED              | K/M        |      |         |        |              |
| 202        | TAPE GUARD B NO/STOP             | K/M        |      |         |        | ]            |
| 211        | 3.75 IPS                         | K/M        | 26   | 26      |        |              |
| 212        | 7.5 IPS                          | K/M        | 27   | 27      | 27     | 27           |
| 213        | 15 IPS                           | K/M        | 37   | 37      | 37     | 37           |
| 214        | 30 IPS                           | K/M        |      | 36      | 36     | 36           |
| 215        | 3.75/7.5 IPS                     | K/M        |      |         |        |              |
| 216        | 7.5/15 IPS                       | K/M        |      |         |        |              |
| 217        | 15/30 IPS                        | K/M        |      |         |        |              |
| 218<br>219 | 3.75/7.5/15 IPS<br>7.5/15/30 IPS | K/M        |      |         |        |              |
| 220        | 3.75/7.5/15/30 IPS               | K/M<br>K/M |      |         |        |              |
| 231        | FADER A                          | 0.0000 500 |      |         |        |              |
| 232        | FADER B                          | K/M<br>K/M | 23   | 23      | 23     | 23           |
| 232        | FADER C                          | K/M        | 23   | 23      |        |              |
| 233        | FADER D                          | K/M        |      |         |        |              |
| 241        | VARISPEED %                      | K/M        |      |         |        |              |
| 242        | VARISPEED HT                     | K/M        |      |         |        |              |
| 243        | VARISPEED IPS                    | K/M        |      |         |        |              |
| 244        | VARISPEED %/IPS/HT               | K/M        |      |         |        |              |
| 245        | VARISPEED IND. ENH.              | K/M        |      |         |        |              |
| 246        | SAVE KEY SETTING Y/N             | K/M        |      |         |        |              |
| 301        | REWIND (<)                       | ĸ          | 07   | 07      | 07     | 07           |
| 302        | FORWARD (>)                      | ĸ          | 06   | 06      | 06     | 06           |
|            |                                  | ,,         | 00   |         |        |              |

| 81 | No.        | Function                                   |            |        |        | ogramm |     |
|----|------------|--|------------|--------|--------|--------|-----|
|    | NO.        | Function                                   | Тур        | A A    | B      | at vei | D D |
|    | 303        | LIBRARY WIND                               | K          | 12     | 11     | 11     | 11  |
|    | 304<br>305 | PLAY<br>REVERSE PLAY                       | K          | 05<br> | 05     | 05     | 05  |
|    | 306        | STOP                                       | K          | 04     | 04     | 04     | 04  |
|    | 307        | RECORD A                                   | K          | 03     |        |        |     |
|    | 308        | RECORD B                                   | Κ          |        | 03     | 03     | 03  |
|    | 309        | EDIT                                       | K          | 02     | 02     | 02     | 02  |
|    | 310        | CUT  | K          | 11     |        |        |     |
|    | 311<br>312 | TRANSFER<br>HOLD                           | K          | 17     | 17<br> | 17     | 17  |
|    | 313        | LOC1                                       | K          | 16     | 16     | 16     | 16  |
|    | 314        | LOC2                                       | ĸ          |        | 15     | 15     | 15  |
|    | 315        | LOC3                                       | K          |        |        |        |     |
|    | 316        | LOC4                                       | K          |        |        |        |     |
|    | 317        | LOC5                                       | K          |        |        |        |     |
|    | 318        | LOC ZERO                                   | K          | 15     | 14     | 14     | 14  |
|    | 319        | LOC START PLAY                             | K          | 14     | 13     | 13     | 13  |
|    | 320<br>321 | LOC START STOP                             | K          |        |        |        |     |
|    | 322        | ROLLBACK PLAY                              | ĸ          | 13     | 12     | 12     | 12  |
|    | 323        | ROLLBACK STOP                              | ĸ          |        |        |        |     |
|    | 324        | ROLLBACK REC                               | ĸ          |        |        |        |     |
|    | 327        | TAPE DUMP A                                | K          | 10     | 10     | 10     | 10  |
|    | 328        | TAPE DUMP B                                | K          |        |        |        |     |
|    | 329        | TAPE DUMP C                                | K          |        |        |        |     |
|    | 330        | TAPE DUMP D                                | K          |        |        |        |     |
|    | 332<br>334 | LIFTER A                                   | K          | 40     | 40     | 40     | 40  |
|    | 335        | LAP/WATCH DISPLAY<br>RESET TIMER           | K          | 41     | 41     | 41     | 41  |
|    | 336        | SET TIMER                                  | ĸ          |        |        |        |     |
|    | 337        | SET ADDRESS                                | K          |        |        |        |     |
|    | 338        | SET VARISPEED                              | к          | 24     | 24     | 24     | 24  |
|    | 339        | VARISPEED ON/OFF                           | K          | 25     | 25     | 25     | 25  |
|    | 345        | REMOTE A R.CTL ONLY                        | K          |        |        |        |     |
|    | 346        | REMOTE B REM+LOCAL                         | K          |        |        |        |     |
|    | 347        | SHUTTLE BAR                                | K          | 01     | 01     | 01     | 01  |
|    | 351        | NO FUNCTION                                | K          |        |        |        | 36  |
|    | 401        | 24 FRAMES/SEC                              | K/M        |        |        |        |     |
|    | 402        | 25 FRAMES/SEC                              | K/M        |        |        |        |     |
|    | 403        | 29.97 FRAMES/SEC                           | K/M        |        |        |        |     |
|    | 404        | 30 FRAMES/SEC                              | K/M        |        |        |        |     |
|    | 406<br>407 | 25/29.97 FRAMES/SEC<br>29.97/30 FRAMES/SEC | K/M<br>K/M |        |        | 35     |     |
|    | 407        | 24/25/29/30 F/SEC                          | K/M        |        |        | 35     |     |
|    | 409        | OFFSET 1.2" Y/N                            | K/M        |        | :      |        |     |
|    |            |  |            |        |        |        |     |

2.6.3
Description of functions

|   | RANGE |       |     |     | (No. | 009) | KEYS/MODE |
|---|-------|-------|-----|-----|------|------|-----------|
| L | RANGE | 4/10  | dBm | Y/N | (No. | 010) | KEYS/MODE |
| L | RANGE | 8/14  | dBm | Y/N | (No. | 011) | KEYS/MODE |
| L | RANGE | 10/16 | dBm | Y/N | (No. | 012) | KEYS/MODE |

Setting of the line level at which the recorder operates. The first of the two level indications of every function is used when the VU-meters are programmed for VU characteristic, the second for PEAK indication.

The range between the two indications is used when the

The range between the two indications is used when the line level used in the studio deviates from the four existing gradations.

In this case the value should be selected that comes clos-

In this case the value should be selected that comes closest to the line level used in the studio and the internal record and reproduce levels are to be adjusted in such a way that the recorder operates with the desired magnetization. (Example: see 4.2.6).

| MASTER |      |     |      | -    |           |
|--------|------|-----|------|------|-----------|
| MASIER | SAFE | Y/N | (NO. | 021) | KEYS/MODE |

Record inhibition for recorders without SAFE/READY switch, or higher ranking SAFE key for recorders with SAFE/READY switch.

| TAPE | Α  | Y/N | (No. | 022) | KEYS/MODE |
|------|----|-----|------|------|-----------|
| TAPE | В  | Y/N | (No. | 023) | KEYS/MODE |
| TAPE | A/ | В   | (No. | 024) | KEYS/MODE |

Tape type selector, either two individual, mutually canceling keys (functions O22 and O23), or a changeover key. The last selected tape type is automatically selected when the recorder is switched on.

The keys can only be operated when pressed together with STOP.

| MONO/STEREO | (No. | 031) | KEYS/MODE |
|-------------|------|------|-----------|
|             |      |      |           |

Mono/Stereo changeover.

On stereo recorders the last existing status is reactivated when the recorder is switched on.

This key can only be operated together with STOP.

| CCIR/NAB | (No. | 032) | KEYS/MODE |
|----------|------|------|-----------|
|----------|------|------|-----------|

Equalization changeover. When the recorder is switched on, the following are established, depending on the version: CCIR for: A820-1, -0.75, -2/2, -2/2 TC. NAB for: A820-1 VU, -0.75 VU, -2/2 VU, -2/2 TC VU. For all other versions the status is reactivated that

For all other versions the status is reactivated that existed before the recorder was switched off.
This key can only be operated together with STOP.

| CCIR/NAB SAME/INDIV | (No. 033) KEYS/MODE |
|---------------------|---------------------|
|---------------------|---------------------|

Changeover to same audio parameters for both equalization standards.

If for both standards the same parameters are required, page to the desired parameter and press STORE; the parameter is automatically copied for the second equalization standard.

Exceptions: Record and reproduce time constants (EQU REC and EQU REP).

REP/SYN SAME INDIV (No. 034) KEYS/MODE

Changeover to same audio parameters for normal and sync reproduction. The process is identical with that of function 033. This function is at present not implemented!

AUTO MUTE ON/OFF (No. 041) KEYS/MODE

Automatic muting in spooling mode (exception: tape lifter engaged for cueing) and during the start phase (until nominal speed is attained).

<u>Default</u>: OFF.

| AUTO INP A | (No. | 042) | KEYS/MODE              |
|------------|------|------|------------------------|
| AUTO INP A | (No. | 043) | KEYS/MODE<br>KEYS/MODE |

Selection of the function AUTO INPUT. All channels in SYNC (AUTO INP A) or in SYNC and READY (AUTO INP B) status are switched to INPUT in the operating modes STOP, REWIND, FORWARD, LOC and ROLLBACK functions.

<u>Default</u>: AUTO INP B.

| l | IN-OUT | DEL. | Y/N | (No. | 044) | KEYS/MODE |
|---|--------|------|-----|------|------|-----------|
|   |        |      |     |      |      |           |

Time delay compensation. Delayed ON/OFF switching (with respect to erase head) of the record head during drop-in and drop-out.

and drop-out.

IN-OUT DEL. = ON (i.e. YES) is a precondition for the REHEARSE function.

Default: YES.

CH CONTR PAR/INDIV (No. 051) KEYS/MODE

For stereo recorders: the channels can either be operated in parallel or individually from either of the two channel mode selectors.

<u>Default</u>: INDIV.

# REHEARSE (No. 101) KEYS ONLY

Simulation of electronic cutting. The PLAY and the REC keys flash in reproduce mode. When REC + PLAY are selected, SYNC is switched over to INPUT at the correct time, however, recording mode is not activated. Pressing PLAY switches back to SYNC.

Preconditions for REHEARSE: the corresponding channel must be switched to SYNC and READY, and IN-OUT DEL = ON (function 044).

Canceling the function: by pressing REHEARSE again.

| SPOT ERASE            | (No. | 102) | KEYS | ONLY |
|-----------------------|------|------|------|------|
| NOT IMPLEMENTED YET ! |      |      |      |      |

SKIMMING (No. 103) KEYS ONLY

NOT IMPLEMENTED YET !

TAPE GUARD A NO/RED

(No. 201) KEYS/MODE

Reduction of the spooling speed shortly before the tape is unthreaded.

From the speed difference between the two reels the corder can detect that the corresponding supply reel contains only a small amount of tape. The spooling speed is reduced under the following conditions:

- The hub diameters in the ALIGNMENT DECK block are defined correctly (refer to 2.6.4, example 2)

  The function TAPE GUARD A is switched on.

function can be suppressed by pressing < or > conti-The

TAPE GUARD B NO/STOP

(No. 202) KEYS/MODE

STOP shortly before the tape is unthreaded.

speed difference between the two reels the recorder can detect that the corresponding supply reel contains only a small amount of tape. STOP is activated under the following conditions:

- The hub diameters in the ALIGNMENT DECK block are defined correctly (refer to 2.6.4, example 2)

  The function TAPE GUARD B is switched on.

function can be suppressed by pressing < or > continuously.

| 3.75 IPS           | (NO. 211) KEYS/MOD |
|--------------------|--------------------|
| 7.5 IPS            | (NO. 212) KEYS/MOD |
| 15 IPS             | (NO. 213) KEYS/MOD |
| 30 IPS             | (NO. 214) KEYS/MOD |
| 3.75/7.5 IPS       | (NO. 215) KEYS/MOD |
| 7.5/15 IPS         | (NO. 216) KEYS/MOD |
| 15/30 IPS          | (NO. 217) KEYS/MOD |
| 3.75/7.5/15 IPS    | (NO. 218) KEYS/MOD |
| 7.5/15/30 IPS      | (NO. 219) KEYS/MOD |
| 3.75/7.5/15/30 IPS | (NO. 220) KEYS/MOD |
|                    |                    |

Speed changeover keys. It is possible to program one key for each desired speed (functions 211...214) or combination keys (changeover whenever a key is pressed (functions 215...217), or "ring keys" (whenever the key is pressed it advances by one position, functions 218...220).

| FADER A<br>FADER B<br>FADER C | (No. 231) KEYS/MODE |
|-------------------------------|---------------------|
| FADER B                       | (No. 232) KEYS/MODE |
| FADER C                       | (No. 233) KEYS/MODE |
| FADER D                       | (No. 234) KEYS/MODE |
|                               |                     |

With the fader start circuit it is possible to switch the recorder remotely to reproduce mode. FADER START mode can prepared (FADER START READY) with a switch that interconnects pin 6 (signal SR-FADRY) with pin 1 (ground) of the parallel control socket. An AC or DC voltage from 5 V to 24 V can be applied to pins 11 and 12: the recorder is to 24 V can be applied to pins 11 and 12; the recorder is switched to reproduce mode. Preparation is also possible with the programmable FADER key on the local keyboard or on the serial remote control, or with the FADER key on the parallel remote control.

Four programmable possibilities:

- - without preparation key (FADER START READY). The local keyboard is disabled with the exception of the speed selection keys. After unthreading the tape the FADER switch must be activated again.
- FADER B:
  - FADER START with enable key (FADER START READY), local keyboard also active as long as FADER START enabled. The local keyboard will be disabled after FADER START; default programming.

■ FADER C:

as FADER START B. except local keyboard disabled when FADER START enabled.

FADER D:

FADER START with enable key (FADER START READY) keyboard also active when FADER START enabled. After the FADER START, the built-in monitor speaker (however not the headphones socket) is muted. If one of keys is operated in PLAY mode after the FADER START operation has been performed, muting of the monitor speaker is canceled. If FADER START is not enabled, actuation of the FADER switch does not change the operating mode of the recorder.

During recording neither the enable key nor the FADER switch can influence the tape transport.

| VARISPEED %        | (No. 241) KEYS/MODE |
|--------------------|---------------------|
| VARISPEED HT       | (No. 242) KEYS/MODE |
| VARISPEED IPS      | (No. 243) KEYS/MODE |
| VARISPEED %/IPS/HT | (No. 244) KEYS/MODE |

Keys for defining the VARISPEED display format. Indication the deviation in percent of the nominal speed or or of the actual tape speed in inches per second. Either an individual key (functions 241...243) or ring key" (advances one step whenever the key is pressed, function 244) can be programmed for each format.

Input of the desired variable tape speed and switching

VARISPEED on/off: see functions No. 338, 339.

VARISPEED IND. ENH. (No. 245) KEYS/MODE

If desired, flashing of the spooling keys < and > in VARI-SPEED mode can be selected with this function.

SAVE KEY SETTING Y/N (Nr. 246) KEYS/MODE

When converting the recorder (e.g. from 1/4" to 1/2" tape) the programming of the keys is adapted automatically if function No. 246 is switched off, i.e. "NO". If the specific programming of the keys is to be preserved, the function must be switched to "YES".

REWIND (<) (No. 301) KEYS/MODE

Rewind with maximum (programmed) spooling speed. function: from FORWARD, ST all LOC functions, and CUT. Selecting the function: STOP, PLAY/REC, SHUTTLE stored, Canceling the function: by pressing FORWARD, STOP, PLAY, SHUTTLE, SHUTTLE BAR, all LOC functions; in synchronizer mode by pressing LOCK.

The spooling speed can be defined in the ALIGNMENT DECK block; <u>default</u>: 15 m/s.

FORWARD (>) (No. 302) KEYS ONLY

Fast forward with maximum (programmed) spooling speed. Selecting/canceling conditions: same as REWIND.

LIBRARY WIND (No. 303) KEYS ONLY

Preselection of this function causes, in conjunction with FORWARD or REWIND, spooling with reduced, defined speed (preselectable from 0.1 to 15 m/s, in steps of 0.1 m/s). Canceling the function: by pressing LIBRARY WIND again The reduced spooling speed can be defined in the ALIGNMENT DECK block; <u>default</u>: 5 m/s.

PLAY (No. 304) KEYS ONLY

Playback with the selected tape speed. Canceling the function: by REC+PLAY, FORWAI STOP, SHUTTLE, SHUTTLE BAR, all LOC functions. FORWARD. REWIND.

(No. 305) KEYS ONLY

Playback in reverse direction.

Selecting the function: either with a key that has been

programmed with this function, or by simultaneously press-TRANS and PLAY.

Canceling the function: see PLAY.

STOP (No. 306) KEYS ONLY

All tape transport functions are canceled by this function.

RECORD A (No. 307) KEYS ONLY

Record mode, only possible in conjunction with PLAY. Selection of the function: by simultaneously pressing REC and PLAY.

Canceling the function: see PLAY, drop-out by pressing PLAY also possible (recorder reenters PLAY mode without interruption).

Function is not activated and illumination of the key is inhibited if:

- MASTER SAFE is switched on,
- No HF driver is installed, On versions with SAFE/READY switches if none of the channels is switched to READY.

RECORD B (No. 308) KEYS ONLY

Record mode, only possible in conjunction with PLAY. Analogous to RECORD A, except: if the recorder is already in reproduce mode, recording can be activated by pressing only REC.

EDIT (No. 309) KEYS ONLY

Activation of the SET/CUE wheel. With the SET/CUE wheel the tape can be fine-positioned by means of the spooling

Selecting the function: from STOP, FORWARD, REWIND, PLAY. Canceling the function: with STOP, FORWARD, REWIND, PLAY, CUT, SET TIMER, SET ADDR, SET VARISPEED, SHUTTLE BAR, all CUT, SET TIME LOC functions.

When the tape is unthreaded in EDIT mode, the tape guide assembly remains in the EDIT position. When the STOP key flashes after power-on, the tape guide assembly can be moved into the EDIT position by pressing the EDIT key. The EDIT position is reached by pressing EDIT regardless of whether the tape is threaded or not. (See "Playing a dumped tape segment", 2.5.24).

CUT (No. 310) KEYS ONLY

Automatic positioning of the tape address located at the CUE point (reproduce head gap) to the position of the scissors. The tape is held tight between the pinch roller and the inoperative capstan shaft. After having cut the tape with the built-in tape scissors, the recorder enters STOP mode. If, however, the tape is not to be cut at this position, the CUT function can be cancelled by either pressing STOP. The recorder automatically enters STOP mode if any cut has ben performed during approx. 10 seconds. Selecting the function: from STOP or EDIT.

Canceling the function: by pressing STOP, by cutting the tape (tape out), or automatically after approx. 10 seconds.

TRANSFER (No. 311) KEYS ONLY

 Preparation for storing the current tape counter address. The buffered tape address is transferred into the corresponding LOC memory by pressing one of the keys LOC1...5, independent of which tape counter display mode (normal or LAP mode) is selected.

Selecting the function: possible at any time Canceling the function: by storing in the L

by storing in the LOC memory or by pressing TRANSFER again.

Pressed together with PLAY: reproduce mode in opposite direction, see REVERSE PLAY.

HOLD (No. 312) KEYS ONLY

Key for "freezing" the current tape counter reading in any condition (also functions when the tape counter is switched to LAP mode). The frozen counter reading can be trans-ferred into one of the LOC memories by pressing one of the keys LOC1...5. The counter continues to advance. By pressing the same LOC key again the tape is positioned at the stored address

stored address.

If the TRANSFER key is pressed after HOLD, and subsequent ly one of the keys LOC1...5, the tape counter reading remains frozen (as if only HOLD would have been pressed). Canceling the function: by pressing HOLD again, or storing in LOC1...5.

| LOC1         | (No. | 313) | KEYS | ONLY |
|--------------|------|------|------|------|
| LOC2         | (No. | 314) | KEYS | ONLY |
| LOC3         | (No. | 315) | KEYS | ONLY |
| LOC4<br>LOC5 | (No. | 316) | KEYS | ONLY |
| LOC5         | (No. | 317) | KEYS | ONLY |
|              |      |      |      |      |

Automatic searching of the stored address in spooling mode; preselection of PLAY or PLAY + REC is possible (keys of the preselected function flash for as long as the LOC process is not yet terminated).

Indication of target address: in STOP status by simul-

taneously pressing STOP and the corresponding LOC key; during a LOC operation: by continuously pressing the corresponding LOC key.

All LOC addresses remain stored even after the recorder has been switched off!

Selecting the function: from PLAY/REC, REWIND, FORWARD,

LOC, SHUTTLE, EDIT.
Canceling the function: with STOP, LOC, REWIND, FORWARD, SHUTTLE, SHUTTLE BAR.

LOC ZERO (No. 318) KEYS ONLY

Automatic searching of the tape address 0.00.00.0 in spooling mode; preselection of PLAY or PLAY + REC possib-

Selecting/canceling the function: see LOC1...LOC5.

A820

| LOC | START-PLAY | (No. 319) KEYS ONL<br>(No. 320) KEYS ONL |
|-----|------------|--|
| LOC | START-STOP | (No. 320) KEYS ONL                       |
| LOC | START-REC  | (No. 321) KEYS ONL                       |

Automatic searching of the tape address where the last time. PLAY command (during standstill of the tape) was given. The LOC START address is stored automatically at any PLAY command if the tape does not move (only PLAY is accepted, but not PLAY+REC).

PLAY or STOP or RECORD is automatically initiated when the target address is reached.  $\begin{tabular}{ll} \hline \end{tabular}$ 

Selecting/canceling the function: see LOC1...LOC5.

| ROLLBACK-PLAY<br>ROLLBACK-STOP | (No. | 322) | KEYS | ONLY |
|--------------------------------|------|------|------|------|
| ROLLBACK-STOP                  | (No. | 323) | KEYS | ONLY |
| ROLLBACK-REC                   | (No. | 324) | KEYS | ONLY |

Recorder spools automatically backward by a preselectable amount. ROLLBACK always relates to the current tape counter reading (also in other indication modes).

PLAY or STOP or RECORD is automatically initiated after the target address has been reached.

Selecting the function: from STOP, PLAY, RECORD, EDIT. Canceling the function: by pressing STOP, REWIND, FORWARD, PLAY, PLAY + REC, SHUTTLE, SHUTTLE BAR, all LOC functions.

The ROLLBACK time can be defined in the ALIGNMENT DECK block.

| 2-04-15 |      |   |      | 10.01.00 |      |      |
|---------|------|---|------|----------|------|------|
| TAPE    |      |   | (No. | 327)     | KEYS | ONLY |
| TAPE    | DUMP | 8 | (No. | 328)     | KEYS | ONLY |

Dump edit mode, take-up motor stopped. Tape counter active and supplied with information by the tacho of the capstan motor (TAPE DUMP A), or tape counter blocked (TAPE DUMP

Selecting the function: only possible from STOP or  $\ensuremath{\mathsf{EDIT}}$  mode.

Canceling the function: by pressing TAPE DUMP a second time or with any tape transport command.

| TAPE | DUMP | С | (No. | 329) | KEYS | ONLY |
|------|------|---|------|------|------|------|
| TAPE | DUMP | D |      |      |      | ONLY |

Tape dump mode with preparation, take-up motor stopped. Tape counter active and supplied with information by the tacho of the capstan motor (TAPE DUMP C), or tape counter blocked (TAPE DUMP D).

Selecting the function: only possible from STOP or EDIT mode. Preparation by means of TAPE DUMP, start of tape dump mode with PLAY, interruption with STOP.

Canceling the function: by pressing TAPF DUMP a second

Canceling the function: by pressing TAPE DUMP a second time (only possible in STOP mode).

| LIFTER A | (No. | 332) | KEYS | ONLY |
|----------|------|------|------|------|

During spooling causes resetting of the tape lift pins and engagement of the tape guide assembly so that the tape is pressed against the reproduce head and the modulation becomes audible. Momentary push button. If AUTO MUTE is selected, muting will be canceled for as long as the tape is in contact with the head.

Selecting the function: during REWIND, FORWARD, LOC and ROLLBACK functions.

Canceling the function: by releasing the LIFTER key.

| LAP/WATCH | DISPLAY | (No. | 334) | KEYS | only |
|-----------|---------|------|------|------|------|
|           |         |      |      |      | - 1  |

Changeover of tape display to a second counter which (like the normal tape counter) is supplied with pulses from the tacho roller. When LAP/WATCH is active, an "L" is shown in the first position of the same coupler display. The LAP counter, too, is reset to zero with RESET TIMER. In LAP/WATCH mode, LOC ZERO relates to the zero position of the LAP/WATCH counter.

Canceling the function: by pressing LAP/WATCH a second time.

| RESET | TIMER | (No. | 335) | KEYS | ONLY |
|-------|-------|------|------|------|------|

Key for resetting the tape counter display or the LAP/WATCH display. Only the counter reading shown on the display will be set to zero. The corresponding counter reading remains at zero until the key is released.

When this key is pressed the momentary content of the tape counter (or of the second counter, refer to LAP/WATCH, function 334) is transferred into a buffer. With the CURSOR keys the display position (h, min, s, 1/10 s) is selected which can subsequently be increased or decreased continually by turning the SET/CUE wheel clockwise or counterclockwise respectively. When STORE is pressed the changed counter reading is transferred to the tape counter.

Canceling the function: by pressing SET TIMER a second time or with SET ADDR, SET VARISP, or VARISPEED.

| SET ADDRESS | (No. | 337) | KEYS | ONLY |
|-------------|------|------|------|------|

Setting locator addresses:

- When this key is pressed the momentary content of the tape counter (or of the second counter, refer to LAP/WATCH, function 334) is transferred into a buffer. With the CURSOR keys the display position (h, min, s, 1/10 s) can be selected which can subsequently be continually increased or decreased by turning the SET/CUE wheel clockwise or counterclockwise respectively. The set address is stored in a LOC register by pressing TRANSFER and one of the LOC keys. The originalcontent of the tape counter reappears when the store function has been completed.
- It is also possible to transfer a locator address to the tape counter display by pressing SET ADDRESS, and STOP together with one of the LOC-keys afterwards. Then, the address can be modified as described above, and stored again with TRANS and one of the LOC keys.

Canceling the function (only if store function has not been performed): by pressing SET ADDRESS a second time, a LOC or ROLLBACK function, SET TIMER, SET VARISPEED.

Input of varispeed. Switches the service display over to VARISPEED indication. The deviation from the nominal speed is indicated in the desired format. The indicated value can be varied with the SET/CUE wheel. The format is entered with one of the VARISPEED DISPLAY functions 241...245.

SET VARISPEED is not possible during audio alignment (SET/CUE wheel is needed for alignment).

Canceling the function: by pressing SET VARISPEED a second time, or by pressing SET TIMER.

VARISPEED ON/OFF (No. 339) KEYS ONLY

Activates the variable tape speed. Switches the service display over to VARISPEED indication. The deviation of the nominal tape speed is indicated in the desired format. The VARISPEED feedback lamp flashes.

The display format is input with one of the VARISPEED DISPLAY FORMAT functions No. 241...245.

If SET VARISPEED is selected at the same time, the tape speed can also be varied during playback by means of the SET/CUE wheel.

If EDIT is also selected it is no longer possible to vary the speed with the SET/CUE wheel because the function of the SET/CUE wheel is required for the EDIT function.

Canceling the function: by pressing VARISPEED ON/OFF a second time.

```
REMOTE A R. CTL ONLY (No. 345) KEYS ONLY
```

Activates the parallel and/or serial remote control; the local keyboard is disabled.

Selecting the function: only from STOP mode, if the STOP key does not flash.

Canceling the function: by pressing the key again, or by switching off the recorder.

If neither REMOTE A nor REMOTE B are assigned to a key, the Local and the remote keyboards are equivalent, corresponding to "REMOTE B active".

```
REMOTE 8 REM+LOCAL (No. 346) KEYS ONLY
```

Activates the parallel and/or serial remote control. The local keyboard remains enabled.

selecting the function: only from STOP mode, if the STOP key does not flash

Canceling the function: by pressing the key again, or by switching off the recorder.

If neither REMOTE A nor REMOTE B are assigned to a key, the local and the remote keyboards are equivalent, corresponding to "REMOTE B active".

<u>Default</u> setting.

```
SHUTTLE BAR (No. 347) KEYS ONLY
```

Key for storing a SHUTTLE speed that has been selected with the SHUTTLE wheel.

Selecting the function: while actuating the SHUTTLE wheel (if the SHUTTLE wheel is in its center position: SHUTTLE BAR equals STOP).
Canceling the function: with all tape transport com-

Canceling the function: with all tape transport commands, LOC and ROLLBACK functions.

Key for resetting the tape guide assembly.

| NO | FUNCTION | (No. | 351) | KEYS | ONLY |
|----|----------|------|------|------|------|
|    |          |      |      |      |      |

"Function" for programming a blank key without function.

| 24 FRAMES/SEC        | (No. | 401) | KEYS/MODE |
|----------------------|------|------|-----------|
| 25 FRAMES/SEC        | (No. | 402) | KEYS/MODE |
| 29.97 FRAMES/SEC     | (No. | 403) | KEYS/MODE |
| 30 FRAMES/SEC        | (No. | 404) | KEYS/MODI |
| 25/29.97 FRAMES/SEC  | (No. | 406) | KEYS/MODI |
| 29.97/30 FRAMES/SEC  | (No. | 407) | KEYS/MODE |
| 24/25/29.97/30 F/SEC | (No. | 408) | KEYS/MODE |

Changeover of the time code standard (only for time code versions). Either one specific key for each standard (functions 401...404) or combination keys (changeover each time the key is pressed, functions 406 and 407) or a ring key" (advances one step each time the key is pressed, function 405) can be programmed.

OFFSET 1/2" Y/N (No. 409) KEYS ONLY

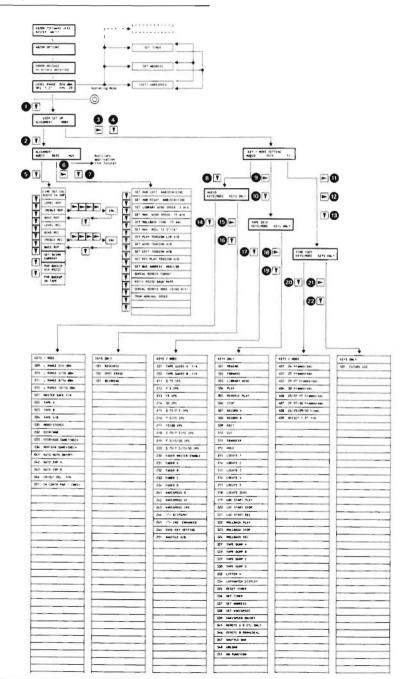
ON/OFF key for adjusting the internal time offset to a different standard (only for time code versions). Normal situation: no offset ("electrically in line").

STUDER

A820

E 2/24

2.6.4 Programming examples



Example 1:

produce, tape speed 7.5 ips, CCIR 041) on without a key being assigned: equalization, tape type A, channel 2:

|   | Action   | Service display indic                        |
|---|--|--|
|   | Turn programming enable switch<br>(28) to counterclockwise stop<br>(Allen kmy No. 2.5) |  |
|   | Recorder in STOP mode  | L RANGE ./ dBm                               |
| 0 | */MEXT   | USER SET UP<br>ALIGNMENT MODE                |
| 0 | */NEXT   | ALIGNMENT<br>AUDIO DECK AUX                  |
| 0 | */NEXT   | LINE OUT CALIBRATION<br>AUDIO CHANNELS INPUT |
|   | */MEXT   | LVL REP 15.0 CC1R A                          |
|   | Press speed selector key 7.5 lps   | LVL REP 7.50 CC1R A                          |
|   | P/CURSOR (switchover to CH 2)  | LVL REP 7.50 CCTR A                          |
|   | Select desired (evel with SET/<br>Cull wheel (indication in MEX)                       | LVL REP 7.50 CCTR A                          |
|   | Save with STORE  |  |
|   | Press f four times   | L RANGE ./. dbs                              |
|   | or:  | or.  |
|   | with * to the next setting   | TRB REP 7.50 CCIR A                          |

Example 3:

Setting the audio parameter level re- Switching the AUTO MUTE function (No.

|   | Action   | Service display indic                   |
|---|--|---|
|   | Turn programming enable switch<br>(28) to counterclockwise stop<br>(Allen key No. 2,5) |   |
|   | Recorder in STOP mode  | L RANGE ./. die                         |
| 0 | */MEXT   | USER SET UP<br>ALIGNMENT MODE           |
| Ð | ►/ CURSOR  | USER SET UP<br>ALIGNMENT MODE           |
| 0 | */NEXT   | MET / MODE SETTING<br>AUDIO DECK TO     |
| 0 | */MEXT   | AUDIO<br>KETS/MODE KETS ONLY            |
| 0 | +/MEXT   | F009 1/0 no key<br>LEY.RARGE 0/608m 1/8 |
|   | Page with SET/CUE wheel to function 041  | FOLT 0/1 no key<br>AUTO MUTE 0M/OFF     |
|   | Change over with STORE   | FO41 1/0 no key<br>AUTO MUTE GR/OFF     |
|   | press f four times   | L RANGE / dBm                           |

#### Example 5:

Reprogramming the RESET TIMER key (key 41, function No. 335) to REVERSE PLAY function (function No. 305):

|   | Action   | Service display indic               |
|---|--|-------------------------------------|
|   | Turn programming enable switch<br>(28) to counterclockwise stop<br>(Allen key No. 2.5) |                                     |
|   | Recorder in STOP mode  | L RANGE /. dBm                      |
| 0 | */WEET   | USER SET UP                         |
| 0 | >/cursor   | USER SET UP<br>ALIGNMENT MODE       |
| 0 | */MEXT   | KET / MODE SETTING<br>AUDIO DECK TO |
| 0 | ►/CURSGR   | KET / MODE SETTING<br>AUDIO DECK TO |
| 0 | */NEXT   | TAPE DECK<br>KEYS/MODE KEYS ONLY    |
| 0 | ►\C∩8208   | TAPE DECK<br>KETS/MODE KEYS_ONLY    |
| 0 | */MEXT   | F301 L07,827                        |
|   | Page with SET/CUE wheet to<br>function 305   | F305 no key<br>REVERSE PLAY         |
|   | Press STORE  | F305 PRESS 2nd KET<br>REVERSE PLAY  |
|   | Continue to hold down STORE, and in addition press RESET TIMER                         | F305 key assigned<br>REVERSE PLAT   |
|   | Change keytop Label  |                                     |
|   | press f four times   | L RANGE ./ OBA                      |

Example 2: Setting the hub diameter of the takeup reel to 50 mm (Cine B):

|   | Action  | Service display indic                     |
|---|---|---|
|   | Turn programming enable switch<br>[28] to counterclockwise stop<br>(Allen key Mo 2.5) |   |
|   | Recarder in STOP mode   | L RANGE // dBm                            |
| 0 | ♥/NEXT  | USER SET UP                               |
| Ø | */MEXT  | ALEGNAENT<br>AUDIO DECK AUX               |
| 0 | ►/CURSOR  | ALIGNMENT<br>AUDIO DECK AU                |
| Ð | •/MEXT  | HUB DIAMETER LEFT<br>SET: NAB (1184m)     |
|   | */MEXT  | HUB DIAMETER RIGHT<br>SET: NAB (11844)    |
|   | Set desired diameter with SET/<br>CUE wheel   | HUB DIAMETER RIGHT<br>SET. CIME B (OSOMA) |
|   | Save with STORE   |   |
|   | Press † four times  | L RANGE ./. dB4                           |
|   | or:   | or:                                       |
|   | with + to the next setting  | SET LIBR WIND SPEED                       |

Example 4: Reprogramming of the FADER START key (key No. 23, function No. 231) to AUTO MUTE function (function No. 041):

|   | Action   | Service display indic.                   |
|---|--|--|
|   | Turn programsing enable switch<br>[28] to counterclockwise stop<br>(Allen key No. 2.5) |  |
|   | Recorder in S10P mode  | L RANGE . / . dB4                        |
| 0 | 9/MEXT   | USER SET UP<br>ALIGNMENT MODE            |
| Ð | ►/CURSOP   | USER SET UP<br>ALIGNMENT MODE            |
| 0 | P/ CEXT  | KEY / MODE SETTING<br>AUDIO DECK TO      |
| 8 | +/x€xī   | AUDIO<br>KETS/MODE KEYS ONLY             |
| 0 | */4Ex1   | FOOP 1/0 no key<br>LEV. RANGE O/odBm T/N |
|   | Page with SET/CUE wheel to function 041  | FG41 D/1 no key<br>AUTO MUTE OM/OFF      |
|   | Press STORE  | FOLT PRESS 2nd KET<br>AUTO MUTE ON/OFF   |
|   | Continue to hold down STORE,<br>and in addition press STARE                            | FO41 key assigned<br>AUTO MUTE ON/OFF    |
|   | Change keytop label  |  |
|   | press f four times   | L RANGE ./. d8s                          |

# DEGRADED OPERATION

This Section describes the extent to which the A820 tape recorder can still be operated in the event of a malfunction in an individual assembly.

Error messages of the service display

The errors are classified in three categories:

- Errors of the first category are the ones preventing a normal operation of the recorder (above all hardware errors). A corresponding error message can be cancelled only by switching off the recorder for 10 seconds at least and then on again. If the error message reappears the malfunction must be repaired. Else, the tape corder can be operated again.
- Errors of the second category can affect the operation of the recorder, however degraded operation is possible. Corresponding error messages are held in the display for information, even if the source of error should disappear. The message can be cancelled by acknowledgement (pressing the STORE key). If the source of error still exists, the message will reappear and can be cancelled again as above, if required. Apart from that, the recorder can be operated.
- Category three errors also can affect the operation. The error message will be cancelled automatically if the source of error disappears. If the LC Display should be used for another purpose (e.g. VARISPEED display) the error message can be cancelled by pressing STORE. The source of error might, however, be persisting.

### Error messages of the first category:

ERR: SUPPLY VOLTAGE

RECORDER: Switches to STOP, no reaction if keyboard is operated.

CAUSE: ACTION: At least one of the supply voltages is missing. The FUSE/SUPPLY VOLTAGE FAILURE DETECTOR indicates which voltage(s) is/are missing.

- Switch recorder off.
- Check secondary fuses and replace them if
- necessary.
   Repair or replace SWITCHING STABILIZER PCB.

ERR: DATA LOST

CALISE . ACTION: Audio and tape deck data lost.

- Switch recorder off and on again. The standard parameters are loaded, the error message disappers.
- Check buffer battery on MASTER MPU, replace it if necessary
- Either go on working with standard data (minor deviations from the optimum frequency response must be accepted), or ■ Reload stored parameters (on tape or floppy
- disk) via RS232 interface, or Reload parameters put down in a protocol, or
- Recalibrate the tape recorder.

ERR: EPROM 1

ERR: EPROM 2

ERR: EPROM 3

CAUSE: ACTION: Error in one of the three EPROMs on MASTER MPU.

■ Switch recorder off and on again. If the message does not reappear, the recorder can operated again.

■ Replace software.

ERR: MOVE-SENSOR HARDWARE

RECORDER: switches to STOP.

MOVE SENSOR PCB defective, or too many direc-CAUSE:

tion changes detected.

ACTION . Replace, repair or readjust.

# Error messages of the second category:

ERR: POWER DROP OUT

RECORDER: switches to STOP.

Short power line failure ≥ 100 ms.

ACTION: Acknowledge with STORE.

ERR: AUDIO CHANNEL 1

ERR: AUDIO CHANNEL 2

CAUSE:

ACTION:

Error in one of the audio channels (e.g. RECORD AMPLIFIER not inserted, HF DRIVER defective or not inserted, excessive erase current because wrong type of erase head is mounted).

with the concerned channel Reproduction

audio

however, possible !!

or replace the concerned

assemblies (recorder switched off !)

■ Check erase head.

# Error messages of the third category:

ERR: MOTOR SUPPLY VOLTAGE LOW

CAUSE: ACTION: Spooling motor supply voltage is missing. Wait for 10 seconds. If the message is still

present:

- present:
   Switch recorder off.
   Check the lower one of the two primary fuses,
  replace it if necessary.
   Repair or replace SPOOLING MOTOR SUPPLY or
  SPOOLING MOTOR DRIVE AMPLIFIER(s).

ERR: NO COMMUNICAT. MASTER-TAPE DECK

CAUSE:

■ No reply to status request.

■ Software of MASTER MPU and TAPE DECK MPU in-

compatible.

ACTION:

MASTER SERIAL INTERFACE and/or TAPE

DECK SERIAL INTERFACE.

■ Replace software.

ERR: TACHO SENSOR

RECORDER: switches to STOP.

CAUSE:

No output signal of one of the three tacho sensors (spooling motors, move sensor), or different sense of rotation of the three sensors, or no spooling motor tacho signal while the the spooling motor supply current exceeds 4 A.

• Check flat cable connectors on the tacho

ACTION:

sensors.

Check tacho sensors, replace if necessary.

Check the tape spindles as well as the roller for free rotation.

ERR: TAPE TENSION CONTROL

CAUSE:

Difference between actual and nominal tape ten-

ACTION:

sion too large for more than 1 second. Check tape path and tape spindles for excessive

friction.

ERR: NO COMMUNICAT. CAPSTAN-TAPE DECK

switches to STOP. RECORDER:

data transfer via the parallel interface

No data transfer via the of the CAPSTAN INTERFACE.

■ Capstan processor does not start up. Replace CAPSTAN INTERFACE. ACTION:

ERR: INCORRECT RADIUS MEASUREMENT

RECORDER:

switches to STOP.

CAUSE:

■ Computed radius of the tape rolls beyond per-

mitted limits.

ACTION:

■ Tacho sensors defective. Switch recorder to PLAY for several seconds (with tape). In general the error message

disappears as soon as enough tacho pulses are present to compute the tape roll radii.

Check tacho sensors, repair or replace.

ERR: SHUTTLE VALUE INVALID

CAUSE:

During the start-up period the SHUTTLE potentiometer delivered wrong values.
■ SHUTTLE wheel may not be deflected during the

ACTION:

start-up period.
• Readjust SHUTTLE potentiometer.

ERR: PINCH ROLLER SLIPPING

RECORDER: switches to STOP. CAUSE:

Pinch roller has excessive slip, capstan speed does not correspond with the tape speed.

■ Clean pinch roller and capstan shaft, replace pinch roller if necessary.

ACTION:

Readjust pinch force correctly.

ERR: INCORRECT INERTIA

RECORDER:

switches to STOP.

CAUSE:

The three last computations of the tape roll inertia did not produce any admissible results. Check all rollers and motors as well as the

ACTION:

tape path for low friction.

WARN: REFERENCE FREQUENCY WRONG

RECORDER: Cannot reach the requested nominal speed in

The external varispeed reference frequency

outside of the permissible range (6.4 kHz to 14.4 kHz), or the signal is missing. Correct or connect the reference signal.

ACTION:

ERR: NOT IDENTIFIED

CAUSE: ACTION:

CAUSE:

Unidentifiable error.

■ Switch recorder off and on again. If the message does not reappear, the recorder can be operated.

■ Unplug the RAM on the MASTER MPU an reinsert

CAUTION: The audio and tape deck parameters are lost, the standard parameters are re-loaded instead!

• Either work on with standard data (minor deviations from the optimum frequency response must be accepted), or • Reload stored parameters (on tape or floppy

disk) via RS232 interface,

Reload parameters that have been put down in a protocol, or

Recalibrate the tape recorder.

<u>Internal error messages:</u>
The following messages are warnings that exist for the internal status field only and are not displayed:

WARN: HUB DIAMETER SETTING TOO HIGH

CAUSE:

hub diameter diverges from Computed the programmed value.

WARN: REEL DIAMETER SETTING TOO SMALL

CAUSE:

Computed reel diameter diverges from the programmed value.

THE LIST ABOVE CLAIMS NOT TO BE COMPLETE AND CAN BE ENLARGED AS REQUIRED.

# 2.7.2 Additional messages of the service display

After having converted the recorder (e.g. from 1/4"-mono to 1/2"-2 channel) the recorder automatically changes its audio and tape tension parameters. The programming of the keys is also adapted. The display indicates:

WARN: DEFAULT KEYS LOADED

If the programming of the keys is to be preserved, the function No. 246 "SAVE KEY SETTING" must be switched on, i.e. "YES".

After a data loss (message: "ERR: DATA LOST", see above) and the consecutive switching off and on again the following message is displayed:

WARN: DEFAULT KEYS & PARAMETER LOADED

The recorder can be operated with standard parameters (or it has to be recalibrated) as described above.

• After having reprogrammed one of the key functions this message is modified to:

WARN: DEFAULT PARAMETER LOADED

After having reprogrammed one of the parameters, this message is modified to:

WARN: DEFAULT KEYS LOADED

# OPERATION WITH SERIAL INTERFACE

Two different interface types are available: Version 1.810.751 is designed for operation with a terminal (RS 232, ASCII format) or for storing the audio parameters for backup purposes on an external storage medium

such as tape or a Personal Computer.

Version 1.820.751 is designed for operation with a terminal (RS 232, binary format) or for connection to an SMPTE/EBU bus according to the SMPTE standard.

#### 2.8.1 SMPTE/EBU bus

The SMPTE/EBU bus is a facility for transmitting data and permits interconnection of several individual units to a flexible and powerful system (for example remote control of several recorders).

## 2.8.2 Data backup

or to a Personal Computer via the 9-pin connector of the serial interface 1.810.751, or new audio parameters can be loaded into the tape recorder (see Section 4.8). The audio parameters stored in RAM can be copied to

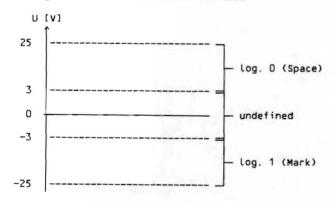
### 2.8.3 RS 232 interface standards

The term "RS232" defines a connection between a "terminal" and a "modem". In addition this standard defines the:

electrical characteristics (level, lines),

- mechanical characteristics (connectors),
- signal descriptions, and
- standard connections.

The interface operates with data rates up to 20 kbit/s and a cable length of up to 15 m. The signal levels are defined as follows:



The 25-pin connector supports diverse interface structures, however, full utilization of all the pins is found rarely today. Modern systems frequently use the minimum structures illustrated in Fig. 2.8.1 for the connection between terminal and mode or terminal and terminal.

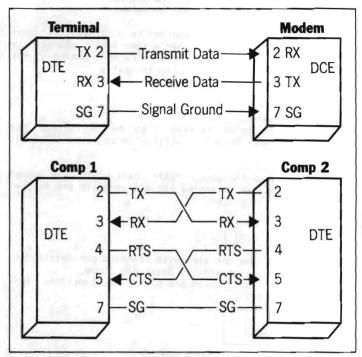


Fig. 2.8.1

All extensions (e.g. baud rate, code, synchronous/asynchronous connection, number of start/stop bits, parity, hardware/software handshake) are defined by the corresponding manufacturer.

# 2.8.4 The serial ASCII interface of the A820

The serial interface of the A820 recorder uses a 9-pin connector according to SMPTE instead of the 25-pin connector. The user can decide by means of an adapter cable whether the unit is to be a terminal or a modem.

| Recoi   |         | Terminal<br>25-pin |         | Modem<br>25-pin |         |
|---------|---------|--------------------|---------|-----------------|---------|
| Signal  | Pin No. | Signal             | Pin No. | Signal          | Pin No. |
| SNDATA  | 2       | Trans.Data         | 2       | Trans.Data      | 3       |
| RCVDATA | 8       | Rec. Data          | 3       | Rec. Data       | 2       |
| GROUND  | 9       | Sig. Ground        | 7       | Sig. Ground     | 7       |

No additional handshake lines are used. A software handshake (X ON/X OFF protocol) is implemented for all baudrates, however only required for 9.6 kbaud.

X ON = 0001 0001 (ASCII DC1) ≜ continue

After reception of X OFF the recorder transmits no more than 2 additional characters. After the recorder has transmitted X OFF, it can still receive five characters without losing an instruction.

The following data are fixed:

- 1 Start bit
- 1 Stop bit
- 8 Data bits
- No parity bit.

The following baud rates can be set: 300, 1200, or 9600.

Only ASCII characters are accepted as data.

2.8.5 Putting the serial interface 1.810.751 of the  $\,$  A820  $\,$  into operation

- Adjust Personal Computer or terminal as follows: 1 start bit, 8 data bits, 1 stop bit (no parity bit), baud rate 300, 1200 or 9600. No echo mode. Connect handshake lines CTS and RTS to "LOW".
- SERIAL REMOTE CONTROLLER 1.810.751: The PCB contains receiver and the driver for the STUDER interface for data backup on tape or on a Personal Computer and the RS232 interface. Switchover by means of a jumper JS1, (position X: switchover with DIL switch 2, OFF = RS232) or automatically (position H). The automatic switchover is implemented, therefore the jumper should be in position H.

Insert the PCB, switch the LED monitor display on with DIL switch 1; both LEDs RX and TX are illuminated. Connect the Personal Computer or the terminal with an

- Connect the Personal Computer or the terminal with an adapter cable to one of the two nine pole connectors RS232. If the connection works, both LEDs RX and TX become dark.
- Program the baud rate according to the Personal Computer or the terminal.

\*\*\*\*\*\* A820 MONITOR \*\*\*\*\*\*\*

\*\*\*\*\* ALL PROCESSES STARTED \*\*\*\*\*

Now the desired commands (see list below) can be entered via the keyboard of the Personal computer or the terminal. Commands are executed after having pressed ENTER or LINE FEED, respectively.

### Instruction set

| TAPE DECK CO   | MMANUS                      |  |
|--|-----------------------------|--|
| Command<br>(_ = blank,<br>/ = CR, * =  | Answer of the tape          | Meaning  |
| blank or CR)   | recorder                    | -  |
| STP*   | <cr><lf></lf></cr>          | Stop   |
| RWD*   | <cr><lf></lf></cr>          | Rewind   |
| FWD*   | <cr><lf></lf></cr>          | Fast forward   |
| PLY*   | <cr><lf></lf></cr>          | Play   |
| REC*   | <cr><lf></lf></cr>          | Record (directly, without preceding PLAY command)  |
| EDI*   | <cr><lf></lf></cr>          | Edit   |
| SSA*   | <cr><lf></lf></cr>          | Set speed to 3,75 ips (9,5 cm/s)   |
| SSB*   | <cr><lf></lf></cr>          | Set speed to 7.5 ips (19 cm/s)   |
| SSC*   | <cr><lf></lf></cr>          | Set speed to 15 ips (38 cm/s)  |
| SSD*   | <cr><lf></lf></cr>          | Set speed to 30 ips (76 cm/s)  |
| WNR_ <xxxx></xxxx>   | <cr><lf></lf></cr>          | Rewind with selectable speed<br>(O ≤ XXXX ≤ 5FFF)  |
| WNF_ <xxxxx></xxxxx>   | <cr><lf></lf></cr>          | Forward wind with selectable speed   |
| _30000   | 30073217                    | (0 ≤ XXXX ≤ 5FFF)  |
| NS?*   | 3.75 IPS <cr></cr>          | Request for nominal speed  |
|  | <lf>, or</lf>               |  |
|  | 7.5 IPS <cr></cr>           |  |
|  | <lf>, or</lf>               |  |
|  | 15 IPS <cr><lf></lf></cr>   |  |
|  | or                          |  |
|  | 30 IPS <cr><lf></lf></cr>   |  |
| VEN*   | <cr><lf></lf></cr>          | Vari-Speed external on   |
| VEF*   | <cr><lf></lf></cr>          | Vari-Speed external off  |
| FEN*   | <cr><lf></lf></cr>          | FADER START ENABLE on  |
| FEF*   | <cr><lf></lf></cr>          | FADER START ENABLE OF  |
|  |                             |  |
| LOC_ <address></address>   | <cr><lf></lf></cr>          | Wind to <(-)hh(:)( )mm(:)( )ss(:)( )n><br>(n = 1/10 seconds)<br>e.g. LOC_01:20:15:0<br>LOC00_35_25_1 |
|  |                             |  |
| MV_ <move roll<="" td=""><td><cr><lf></lf></cr></td><td>Fast wind to move roll pulse count <xxxxxxxx< td=""></xxxxxxxx<></td></move> | <cr><lf></lf></cr>          | Fast wind to move roll pulse count <xxxxxxxx< td=""></xxxxxxxx<>                                     |
| pulse  |                             | 4 bytes HEX  |
| count>   |                             | e.g. LMV_OOAE4FOO  |
| 4V?*   | xx xx xx xx                 | Request for move roll pulses count   |
| 14:-   | <cr><lf></lf></cr>          | Request for move rock pacses count   |
|  | 4 bytes HEX                 |  |
| TM_ <address></address>  | <cr><lf></lf></cr>          | Set timer to <(-)hh(:)( )mm(:)( )ss(:)( )nnn   |
| 1H_ <a001 6225<="" td=""><td>CANCEL</td><td>(nnn = milli seconds)</td></a001>  | CANCEL                      | (nnn = milli seconds)  |
|  |                             | <pre>(nnn = milli seconds) (-9:59:59:999 ≤ address ≤ 23:59:59:999)</pre>                             |
|  |                             | e.g. STM_01_20_15_000  |
|  |                             | STM00:35:25:125  |
| M?*  | _hh:mm:ss:z                 | Tape timer request   |
|  | <cr><lf>, or</lf></cr>      | . op . inc.   equation   |
|  | -hh:mm:55:2                 |  |
|  | <cr><lf></lf></cr>          |  |
|  | z = 1/10 sec                |  |
| ST*  | <cr><lf>&lt;_hh:m</lf></cr> | Display machine status on the screen, will b   |
| -  | m:ss:z Y XXXXX              | repeated (cancel with CTRL X)  |
|  | XXXXXXXXXXXXXXXX            |  |
|  | z = 1/10 sec.               |  |
|  | Y= status,                  |  |
|  | 1 byte HEX                  |  |
|  | X = Status in               |  |
|  |                             |  |
|  | clear, e.g.                 |  |

| Command<br>(_ = blank,<br>/ = CR, * =<br>blank or CR) | Answer of<br>the tape<br>recorder | Meaning                                 |
|---|-----------------------------------|---|
| ST?*  | X <cr><lf></lf></cr>              | Status request                          |
|   | X = 1 byte HEX                    | e.g.:                                   |
|   | x = 01                            | TAPE OUT                                |
|   | X = 81                            | TAPE OUT ACHIEVED                       |
|   | x = 02                            | STOP NOT ACHIEVED                       |
|   | x = 82                            | STOP ACHIEVED                           |
|   | x = 03                            | REWIND NOT ACHIEVED                     |
|   | x = 83                            | REWIND ACHIEVED                         |
|   | x = 04                            | FORWARD NOT ACHIEVED                    |
|   | x = 84                            | FORWARD ACHIEVED                        |
|   | x = 05                            | PLAY NOT ACHIEVED                       |
|   | x = 85                            | PLAY ACHIEVED                           |
|   | x = 06                            | PLAY VARISPEED NOT ACHIEVED             |
|   | x = 86                            | PLAY VARISPEED ACHIEVED                 |
|   | x = 07                            | PLAY INT. REF. NOT ACHIEVED             |
|   | X = 87                            | PLAY INT. REF. ACHIEVED                 |
|   | x = 08<br>x = 88                  | PLAY EXT. REF. NOT ACHIEVED             |
|   | x = 89                            | PLAY EXT. REF. ACHIEVED RECORD ACHIEVED |
|   | x = 8A                            | REVERSE PLAY ACHIEVED                   |
|   | X = 0B                            | EDIT NOT ACHIEVED                       |
|   | x = 8B                            | EDIT ACHIEVED                           |
|   | x = c0                            | SHUTTLE REVERSE ACHIEVED                |
|   | x = C1                            | SHUTTLE FORWARD ACHIEVED                |
|   | x = 42                            | LOCATE WIND REVERSE                     |
|   | x = c2                            | LOCATE WIND REVERSE ACHIEVED            |
|   | x = 43                            | LOCATE WIND FORWARD                     |
|   | x = c3                            | LOCATE WIND FORWARD ACHIEVED            |
|   | x = C4                            | LOCATE PLAY REVERSE ACHIEVED            |
|   | x = c5                            | LOCATE PLAY FORWARD ACHIEVED            |
|   | x = C6                            | CUEING REVERSE ACHIEVED                 |
|   | x = c7                            | CUEING FORWARD ACHIEVED                 |
|   | x = c8                            | POSITION PLAY REVERSE ACHIEVED          |
|   | X = C9                            | POSITION PLAY FORWARD ACHIEVED          |
|   | x = 59                            | TAPE DUMP                               |
|   | X = D9                            | TAPE DUMP ACHIEVED                      |
|   | x = 5A                            | CUT WITH DISTANCE NOT ACHIEVED          |
|   | X = DA                            | CUT WITH DISTANCE ACHIEVED              |

| ( = blank,   |        |
|--|--------|
| SHN#   CR><  Set MONO mode (if MONO/STEREO SWITCH property)  |        |
| SMN*   |        |
| Set STEREO mode (if MONO/STEREO SWITCH SNB*   SCR*   Set NAB equalization   Set CCIR equalization            |        |
| SNB+   CCR>CLF>   Set NAB equalization   |        |
| SCR*         CCR>CLF>         Set CCIR equalization           STB*         CCR>CLF>         Set tape type A           SCR*CLF>         Set tape type B           MSN*         CCR>CLF>         MASTER SAFE on           MSF*         CCR>CLF>         MASTER SAFE off           SRH*         CCR>CLF>         REHEARSAL mode on           CRH*         CCR>CLF>         Drop in/out delay on           DDF*         CCR>CLF>         Channet i READY         (i = 1, 2, 3,           SAF_i/         CCR>CLF>         Channet i SAFE         (i = 1, 2, 3,           SAF_i/         CCR>CLF>         Channet i SYNC         (i = 1, 2, 3,           SYN i/         CCR>CLF>         Channet i SYNC         (i = 1, 2, 3,           CRP-i/         CCR>CLF>         Channet i MUTU         (i = 1, 2, 3,           MIN_i/         CCR>CLF>         Channet i MUTE         (i = 1, 2, 3,           CRP-i/s         CCR>CLF>         Channet i MUTE         (i = 1, 2, 3,           CF = all channets         Set D/A converter j, channel i, to k         (i = 1 or 2; j = 0; LEVEL REPRO           2: BASS REPRO         2: BASS REPRO         3: EQUALISATION REP   | pres.) |
| STA#   CCR>CLF>   Set tape type A  |        |
| STB*   CCR>CLF>   Set tape type B  |        |
| MSN*   |        |
| MSF*   |        |
| SRH*   |        |
| CRH*   |        |
| DDN*   |        |
| DDF*   |        |
| REA_i/  SAF_i/  CCR> <lf> Channel i READY  Ci = 1, 2, 3,  Channel i SAFE  Ci = 1, 2, 3,  Channel i SNC  Ci = 1, 2, 3,  Channel i REPRO  Ci = 1, 2, 3,  Channel i MUTE  Channel i MUTE  Ci = 1, 2,  Channel i MUTG  Ci = 1, 2,</lf> |        |
| SAF   1  |        |
| SAF_1  | or F)  |
| SYN_1  | or F)  |
| SYN_1  | or F)  |
| REP_i/ MTN_i/ <cr><lf></lf></cr>   | or F)  |
| MTN_i/ <cr><lf> <cr><lf> Channel i MUTE Channel i MUTING OFF (i = 1, 2, (F = all channels)  SAP_i_j_k*  <cr><lf>  SET D/A converter j, channel i, to k (i = 1 or 2; j = 0: LEVEL REPRO 1: TREBLE REPRO 2: BASS REPRO 3: EQUALISATION REPI</lf></cr></lf></cr></lf></cr>  | or F)  |
| MTF_i/ <cr><lf> Channel i MUTING OFF (i = 1, 2, (F = all channels)  SAP_i_j_k*   CCR&gt;<lf> Set D/A converter j, channel i, to k (i = 1 or 2; j = 0: LEVEL REPRO 1: TREBLE REPRO 2: BASS REPRO 3: EQUALISATION REP</lf></lf></cr>   | or F)  |
| SAP_1_j_k*  Set D/A converter j, channel i, to k  (i = 1 or 2; j = 0: LEVEL REPRO 1: TREBLE REPRO 2: BASS REPRO 3: EQUALISATION REP  |        |
| (i = 1 or 2; j = 0: LEVEL REPRO 1: TREBLE REPRO 2: BASS REPRO 3: EQUALISATION REP  |        |
| 1: TREBLE REPRO 2: BASS REPRO 3: EQUALISATION REP  |        |
| 2: BASS REPRO<br>3: EQUALISATION REP   |        |
| 3: EQUALISATION REP  |        |
|  |        |
| 4. LEVEL DECOON  | 10     |
| 4. LEVEL RECORD  |        |
| 5: TREBLE RECORD   |        |
| 6: BIAS  |        |
| 7: EQUALISATION REC  | ORD:   |
| k = 2 digits HEX, corresponds to the   |        |
| appearing on the service display dur   |        |
| audio adjustments)   |        |
| e.g. SAP_1_O_FF  |        |

| Command<br>(_ = blank,<br>/ = CR, * =<br>blank or CR) | Answer of<br>the tape<br>recorder       | Meaning   |
|---|---|---|
| AP?_i,j*  | XX <cr><lf><br/>XX=1 byte HEX</lf></cr> | Request for audio parameter, channel i, D/A converter j (i = 1 or 2; j = 0: LEVEL REPRO j = 1: TREBLE REPRO j = 2: BASS REPRO j = 3: EQUALIZATION REPRO j = 4: LEVEL RECORD j = 5: TREBLE RECORD j = 6: BIAS j = 7: EQUALIZATION RECORD |

| Command<br>(_ = blank,<br>/ = CR, * = | Answer of the tape              | Meaning   |
|---------------------------------------|---------------------------------|---|
| blank or CR)                          |                                 | Reaning   |
| LCE*                                  | <cr><lf></lf></cr>              | Local keyboard enabled  |
| LCD*                                  | <cr><lf></lf></cr>              | Local keyboard disabled   |
| RME*                                  | <cr><lf></lf></cr>              | Remote keyboard enabled   |
| RMD*                                  | <cr><lf></lf></cr>              | Remote keyborad disabled  |
| TON*                                  | <cr><lf></lf></cr>              | Time code delay on  |
| TDF*                                  | <cr><lf></lf></cr>              | Time code delay off (bypass)  |
| TH?*                                  | O <cr><lf>, or</lf></cr>        | Request for time code source (0 = Left head:                              |
|                                       | 1 <cr><lf>, or</lf></cr>        | 1 = right head wide;  |
|                                       | 2 <cr><lf>, or</lf></cr>        | 2 = right head narrow;  |
|                                       | 3 <cr><lf></lf></cr>            | 3 = line input  |
| SBA_ <address></address>              | <cr><lf></lf></cr>              | Set bus address to <xxxxx> (4 digits HEX,<br/>82FF ≤ XXXX ≤ FFFF)</xxxxx> |
| BA?*                                  | <xxxx><cr><lf></lf></cr></xxxx> | Display bus address   |

| SPECIAL COMM  | ANDS                              |  |  |
|---|-----------------------------------|--|--|
| Command<br>(_ = blank,<br>/ = CR, * =<br>blank or CR) | Answer of<br>the tape<br>recorder | Meaning  |  |
| D108_227*<br>UAP_ <hex addr,<br="">data&gt;*</hex>    | see examples                      | Display RAM content on screen Update audio parameter |  |

The above list is not completed and will be enlarged as required.

# Examples:

- FWD\* = Fast forward
- LOC\_-01:43:00:8
  - = Autolocator to address 1.43.0.8
- SAF\_3/ = Time code channel SAFE (Recording inhibited)
- AP?\_1\_4\* = Request for audio parameter channel 1, D/A converter 4 (LEVEL RECORD); answer of the recorder e.g. A9 HEX
- SAP\_1\_4\_A3\* = Set audio parameter channel 1, D/A converter 4 (LEVEL RECORD); new value A3 (old value A9 from the foregoing example will be overwritten!)

  CAUTION! All other parameters such as SYNC or REPRO, tape speed, tape type, equalization, must be selected on the recorder's controls!

■ D108\_227\*

= All audio and tape tension parameters are displayed on the terminal in hexadecimal format, e.g.

```
.800;
```

The address of a parameter can be computed as a decimal value by means of the formula below (and must subsequently be translated to a hexadecimal value!):

```
RADR = ARAM-12 + IDAC + ISYNC*8 + CCAB*12
       + SPEED*24 + CHNL*72 + TAPE*144
```

#### where:

- RADR = address of the parameter (in decimal form)

- ARAM = 264 (108 hex), start address of the parameter range in the RAM

- IDAC = 0 for LEVEL REPRO = 1 for TREBLE REPRO

= 2 for BASS REPRO

= 3 for EQUALIZATION REPRO

= 4 for LEVEL RECORD = 5 for TREBLE RECORD

= 6 for BIAS RECORD = 7 for EQUALIZATION

for EQUALIZATION RECORD

- ISYNC = O for REPRO MODE

= 1 for SYNC MODE

- CCAB = 0 for CCIR equalization (automa-

tically = 0 at 30 ips)

= 1 for NAB equalization (automatically = 1 at 3.75 ips)

- SPEED = 0 for 3.75 ips (9,5 cm/s)
= 1 for 7.5 ips (19 cm/s)

= 2 for 15 ips = 3 for 30 ips (38 cm/s) (76 cm/s)

- CHNL = 0 for channel 1

= 1 for channel 2

- TAPE = 0 for tape type A = 1 for tape type B

The address of TREBLE REPRO, SYNC, NAB, 15 ips, channel 1, tape type A is thus computed as follows:

264-12 + 1 + 1\*8 + 1\*12 + 2\*24 + 0\*72 + 1\*144 = 465 = 0101 (hex)

■ UAP\_01D1\_5C = Update above parameter to 5C

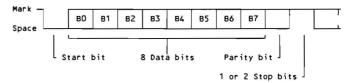
### 2.8.6

Putting the serial interface 1.820.751 of the A820 into operation

Hardware definitions:

Electrical standards according to RS232C or RS422A (adaptable by means of jumpers).

- Full duplex
- Asynchronous data transfer, bit and word serial according to the following diagram:



Odd or even parity as well as the number of stop bits (1

- or 2) are programmable.

  For RS232 as well as RS422, the baud rates are programmable to 9600 or 1200 Baud. For operation with an SMPTE bus it is fixed to 38.400 kBaud.
- Standard factory adjustments:
  - RS232C
  - 1 Start bit
  - · 8 Data bits
  - even Parity1 Stop bit
  - 9600 Baud.

# <u>Pin</u> assignment:

| Pin | RS232  | RS422           |
|-----|--------|-----------------|
| 1   | SHIELD | SHIELD          |
| 2   |        | TRANSMIT A      |
| 3   | RX     | RECEIVE B       |
| 4   | 0,0 V  | RECEIVE COMMON  |
| 5   |        |                 |
| 6   | 0,0 V  | TRANSMIT COMMON |
| 7   | TX     | TRANSMIT B      |
| 8   |        | RECEIVE A       |
| 9   | SHIELD | SHIELD          |

# Jumpers:

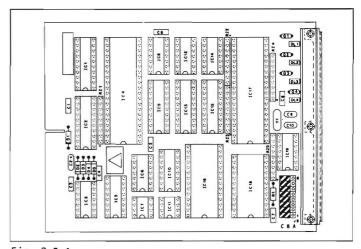


Fig. 2.8.1

 Switchover of operating modes and of electrical configurations:

|              | J8 | J7 | J6 | J5 | J4 | J3     | J2 | J1 |
|--------------|----|----|----|----|----|--------|----|----|
| SMPTE BUS    | ВС | ВС | вс | вс | ВС | 1,5150 | ВС | ВС |
| SERIAL RS232 | AB | AB | AB | AB | AB | -      | AB | AB |
| SERIAL RS422 | AB | ВС | вс | ВС | AB | ad =   | ВС | вс |

Selecting the baud rates:

|               |          | J3 |
|---------------|----------|----|
| SMPTE BUS     | 38,4 kBd | ВС |
| RS232/RS422 - | 9600 Bd  | ВС |
|               | 1200 Bd  | AB |

Standard adjustments:

|                           | J8 | J7 | 16 | J5 | J4 | J3 | J2 | J1 |
|---------------------------|----|----|----|----|----|----|----|----|
| SMPTE BUS                 | вс |
| SERIAL RS232<br>9600 Baud | AB | AB | AB | АВ | АВ | вс | АВ | АВ |

Pilot lamps The four t The four LEDs on the front bracket of the assembly 1.820.751 are used for different purposes depending on if the assembly is configured as a serial interface the assembly is configured as a serial interface (RS232/RS422) or as a SMPTE/EBU bus interface (programma-

| SMPTE/EBU-BUS:  | PCB | RS232/RS422:   |
|---|-----|--|
| INTERFACE SELECTED  Is on as long as the interface receives a SEL ADDR and as long as it is in the SELECT status.     | 0   | Is on as soon as the interface receives STX (control byte) or a message.                     |
| INTERFACE POLLED  Is on when the interface receives a POLL ADDR and as long as it is in the POLL status.              | 0   | Is on as long as the interface sends a message.  |
| INTERFACE IDLE/ACTIVE —<br>Is on as long as the interface<br>is waiting for a BREAK signal<br>or for its own address. | 0   | INTERFACE ACTIVE Is on as long as the interface waits for STX (control byte).                |
| FIFO TX/RX ACTIVE<br>Is on as long as the interface<br>receives or sends data from or<br>to the FIFO.                 | 0   | FIFO TX/RX ACTIVE Is on as long as the interface receives or sends data from or to the FIFO. |
| to the FIFU.  |     | to the FIFO.   |

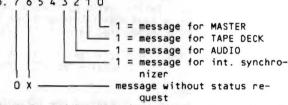
<u>Software protocol:</u>
The control system can transmit commands (function or parameter commands) or status requests to the A820. The A820 acknowledges the commands and transmits status reports on request.

Commands from the control system to the A820:

| CTV | DC | CD | 0.0 | CD- | 0.0 |
|-----|----|----|-----|-----|-----|
| 217 | BC | CB | CC  | CPs | 62  |

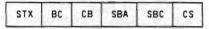
- is a control character transmitted as start signal (according to SMPTE proposal: STX = 02H).
- <u>BC</u> (Byte Count): contains the number of the following bytes without checksum.

CB (Control Byte): Bit No. 7 6 5 4 3 2 1 0

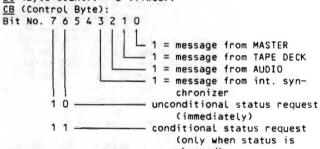


- . CC (Command Code): function or parameter command;
- refer to the instruction set.

   CP (Parameter Bytes): for parameter commands only; in case of several parameters the MSB is transmitted
- <u>CS</u> (Checksum): two's complement of the sum of all the transmitted data before the checksum except STX.
- Status requests from control system to A820:



- is a control character transmitted as start signal (according to SMPTE proposal: STX =  $02_H$ ). BC (Byte Count): = 3 (fixed).



- changed)
  SBC (Status request bytes): SBA · SBA, contains the basic address, SBC contains the number of bytes of the
- desired status.

  CS (Checksum): two's complement of the sum of all the transmitted data before the checksum except STX.
- Acknowledgments and status reports from A820 to control system:

After having sent a block of commands and before sending the next, the control system has to wait for an acknowledgment of the A820.

This acknowledgment can consist of a control character or of a status report.

If any acknowledgment arrives during a "time-out" the control system considers the data transmission faulty.

Possible acknowledgments:

• Acknowledgment after faultless data transmission, conditional status request (status report only status changes) but unchanged status:

ACK ( = 04<sub>H</sub> according to SMPTE proposal)

- Acknowledgment after the following errors:
   Transmission errors (Framing, Parity Overrun)

- Invalid command codes

- Time-out (2 s) during transmission of the command

( = 05<sub>H</sub> according to SMPTE proposal) NAK

· Status report as acknowledgement of:

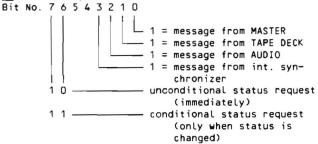
- unconditional status request

- conditional status request, and changed status

| ì |     |    |    |     |     |        |    |
|---|-----|----|----|-----|-----|--------|----|
|   | STX | ВС | СВ | SBA | SBC | STATUS | CS |

is a control character transmitted as start signal (according to SMPTE proposal: STX =  $02_{H}$ ). BC (Byte Count): contains the number of the following bytes without checksum.

CB (Control Byte):



SBC (Status request bytes): SBA contains the basic address, SBC contains the number of bytes of the desired status.

STATUS: Table with the desired status bytes. CS (Checksum): two's complement of the sum two's complement of the sum of all the transmitted data before the checksum except STX.

 Instruction set IN PREPARATION.

# MAINTENANCE HINTS

Daily care is limited to cleaning the soundheads, capstan shaft, and the tape guidance elements.

Dust and oxide particles from the magnetic tape coating tend to accumulate on the soundheads and the tape guidance elements. This can lead to so-called dropouts in recording mode.

Cleaning should be performed daily or more frequently if contamination is visible.

Cleaning is best performed with a STUDER cleaning kit (part No. 10.496.010.00). It contains all necessary utensils and a special soundhead cleaning fluid as well as aluminite cleaner.

### Procedure

Moisten the yellow cloth with cleaning fluid and clean all tape guidance elements. Subsequently dry the cleaned parts with a dry section of the yellow cloth.

The grooves of the right-hand time code head can be cleaned preferably by means of a hard paint-brush whose bristles are cut to a length of approx. 5 mm.

The capstan normally stands still if the recorder is not switched to PLAY. A special function activates the capstan for cleaning purposes. The tape has to be unthreaded, then

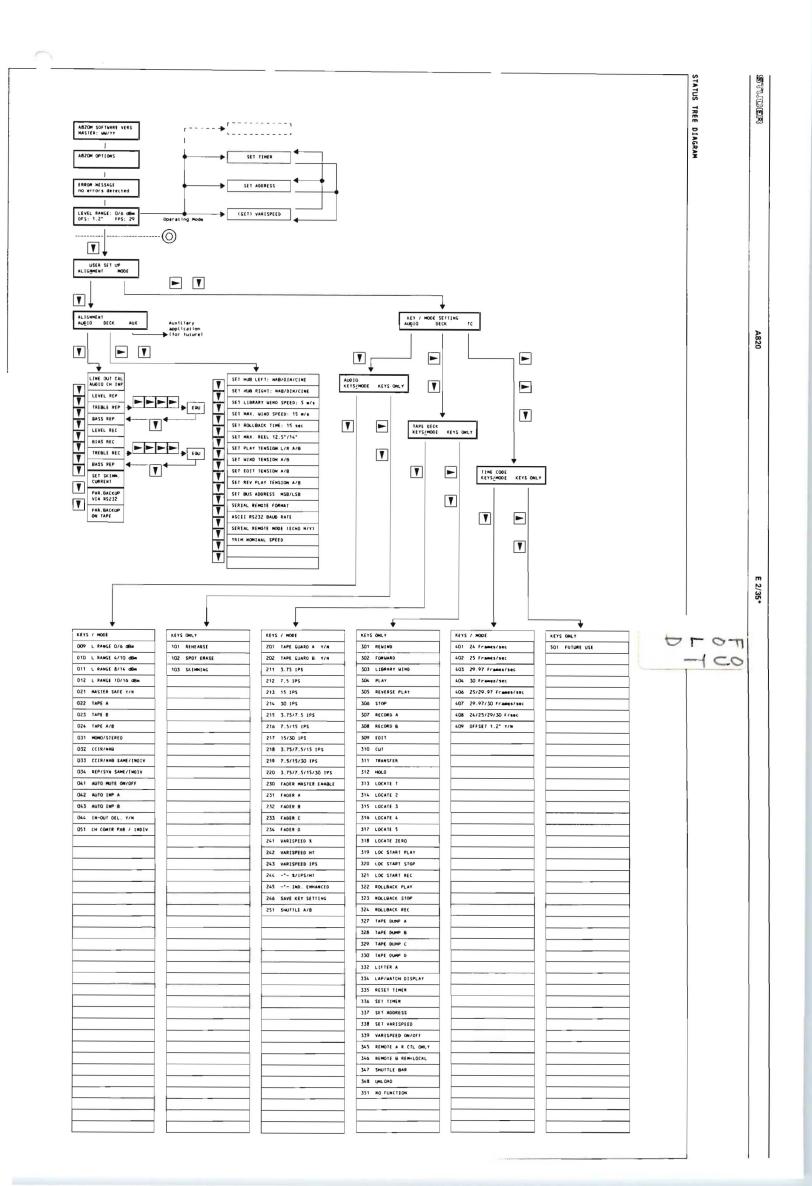
for cleaning purposes. The tape has to be unthreaded, then press PLAY.

#### Caution!

Ensure that no cleaning fluid drips into the bearing when cleaning the capstan! The cleaning fluid can damage the cleaning the capstan! windows of the VU-meters!

## Lubricating the capstan bearing

The capstan motor is carefree; to increase its service life, Lubricating the capstan bearing once a year is recommended. For this purpose, apply one drop of oil (type PDP 65, order No. 20.020.401.04).



# POWER SUPPLY, TAPE DECK CONTROL

| 3                  | POWER SUPPLY, TAPE DECK CONTROL                  |       |                  |   |      |
|--------------------|--|-------|------------------|---|------|
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| 3.1.3.8            | MOTOR TACHO PCB 1.820.771 GRP36 (left),          |       |                  | or the tape trans port controt                | 3/30 |
|                    | GRP37 (right)                                    | 3/14  |                  |   |      |
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| 3.1.3.10           | SPOOLING MOTOR DRIVER PCB 1.820.759              |       |                  |   |      |
|                    | GRP20/ELM40                                      | 3/15  |                  |   |      |
| 3.1.3.11           | SPOOLING MOTOR DRIVE AMPLIFIER PCB               |       |                  |   |      |
|                    | 1.820.775 GRP30,GRP33                            | 3/16  |                  |   |      |
| 3.1.3.12           | TAPE TENSION SENSOR PCB 1.820.772                |       |                  |   |      |
|                    | Tape tension sensor assembly left                |       |                  |   |      |
|                    | 1.820.150 GRP42                                  |       |                  |   |      |
|                    | Tape tension sensor assembly right               |       |                  |   |      |
|                    | 1.820.150 GRP43                                  | 3/16  |                  |   |      |
| 3.1.3.13           | CAPSTAN CONTROL UNIT 1.820.764                   |       |                  |   |      |
| 7 4 7 4            | GRP20/ELM41                                      | 3/16  |                  |   |      |
| 3.1.3.14           | CAPSTAN INTERFACE 1.820.727 GRP20/ELM42          | 3/17  |                  |   |      |
| 3.1.3.15           | TACHO SENSOR ELECTRONICS PCB 1.021.695           | 7     |                  |   |      |
| 7 1 7 14           | GRP 38   | 3/17  |                  |   |      |
| 3.1.3.10           | CAPSTAN MOTOR DRIVE AMPLIFIER PCB                | 7/10  |                  |   |      |
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|                    |  |       |                  |   |      |

## 3 POWER SUPPLY, TAPE DECK CONTROL

# CIRCUIT DESCRIPTIONS

# General:

The section 3.1 is divided as follows: At the beginning (3.1.1), the circuit descriptions of the general assemblies (e.g. power supply) can be found. These are followed by descriptions of the control and tape deck assemblies, in which the functions have been broken down by two blocks

(3.1.2 and 3.1.3), so that the purpose of the individual assemblies within the functional modules and their interaction can be presented. The criterion for this breakdown is the corresponding common data bus. Each block diagram explains the function of a block and is followed by the circuit descriptions of the individual assemblies.

| ACIA | Asynchronous communication interface adapter |
|------|--|
| ADC  | Analog to digital converter                  |
| CMOS | Complementary metal oxide semiconductor      |
| DAC  | Digital to analog converter                  |
| FIFO | First in, first out                          |
| IRQ  | Interrupt request                            |
| LSB  | Least significant bit                        |
| MPU  | Microprocessor unit                          |
| MSB  | Most significant bit                         |

#### Utilized abbreviations (continued): N-channel metal oxide semiconductor Non maskable interrupt PIA Peripheral interface adapter PIO Parallel input/output Programmable read only memory RAM Random access memory ROM Read only memory SSDA Synchronous serial data adapter VMOS Vertical metal oxide semiconductor

#### 3.1.1 Power supply

Power supply electronics 1.820.510 GRP01 - GRP12

## Function:

 Supply of the GRP32 (SWITCHING STABILIZER PCB 1.820.790) with a filtered DC voltage (approx. 50 to 60 V), and the GRP31 (SPOOLING MOTOR SUPPLY PCB 1.820.777) with an AC voltage (approx. 35 to 45 V).

Circuit description:
The line voltage is applied to a 3-pin power inlet (GRP01/ELM01). The insulation of the power supply corresponds to IEC65, protection category 1; the protective ground terminal is connected to chassis (GRP02/ELM01). ground terminal is connected to chassis (GRP02/ELM01). From the power inlet the AC voltage is taken via the power switch (GRP03/ELM01), the interference suppression filter (GRP04), the primary fuse (GRP05), and the 220 V/110 V voltage selector (GRP07) to two identical power transformers, GRP08 and GRP09. Each primary winding (ELM01 and ELM02) consists of a 100 V and a 10 V winding that are connected in series (interconnection of PNT01 with PNT04 on ELM01, as well as PNT06 with PNT07 on ELM02). The 6 identical secondary windings (ELM03 and ELM04) of GRP08 are all connected in parallel and connected to GRP31/ELM02 (SP00LING MOTOR SUPPLY PCB 1.820.777 GRP31). These 6 identical secondary windings (ELMO3 and ELMO4) of

- GRP09 are combined in three units:

  The first unit comprises three parallel-connected windings and supplies the positive section of the STABILIZER PCB via the fuse (GRP10/ELM01), the bridge rectifier (GRP11/ELM01), and the filter capacitors (GRP12/ELM01 and GRP12/ELM02).
- The second unit comprises two parallel-connected windings and supplies the negative section of the SWITCHING STABILIZER via the fuse (GRP10/ELMO2), the bridge rectifier (GRP11/ELMO2), and the filter capacitor fier (GRP11/ELMO2), and the filter capacitor (GRP12/ELMO3). The AC voltages ACPWE-B1 and ACPWE-D1 are tapped on the input to the bridge rectifier and are also taken to the SWITCHING STABILIZER.
- The third section comprises the remaining winding and supplies the capstan motor control via the fuse (GRP10/ELMO3), the bridge rectifier (GRP11/ELMO3), and the charging capacitor.

The three DC output voltages are approx. 50 to 60 V each,

### 3.1.1.2 SWITCHING STABILIZER PCB 1.820.790 GRP32 (incl. STABILIZER/LIMITER PCB 1.820.792)

#### Function:

- Producing all regulated voltages required by the tape recorder:
  - +5.6 V for the logic circuits
  - +15 V and
  - $\cdot$  -15 V for the audio section
  - +24 V for the incandescent lamps of the tape command keyboard and the brake solenoids,
  - +26 V and
  - -26 V for the positioning motors of the pressure unit, as well as
  - the supply voltage (+REMSUP) for a serial remote control (approx. 50 V, current limitation at approx.
     1 A).

The +24 V supply voltage of the terminals for the parallel remote control and the synchronizer is produced on the PARALLEL REMOTE INTERFACE with a preset linear voltage regulator (IC15) from +REMSUP.

#### Circuit description:

- SWITCHING STABILIZER PCB 1.820.790 GRP32:
  - By means of a voltage regulator this circuit produces the +5.6 V and ±15 V from the input voltages +STABIN and -STABIN. The three switching regulator components (IC1, 2, 3) are fed by one of the two linear voltage regulators for +26 V (IC103) and +24 V (IC8). IC103 and IC8 are mutually decoupled by D101 and D15. The three switching regulators operate synchronously with a clock frequency of 76 kHz (TD-C76K) which is generated by the MP UNIT TAPE DECK CONTROL 1.820.785 GRP20/ELM46. This clock is checked for correct frequency by IC7.1/7.2, the parallel oscillator circuit L4/C37, and the DUAL ONE SHOT IC6, and noise is thereby filtered out.
  - oscillator circuit L4/C37, and the DUAL ONE SHOT IC6, and noise is thereby filtered out.

    +5.6 V control: From +STABIN the switching regulator produces the +5.6 V supply voltage. The clock of IC6/pin 5 is taken to IC1 (REGULATING PULSE WIDTH MODULATOR). IC1 contains the reference voltage source, oscillator (not used in this application), error amplifier, and current limiting circuit.
    - The output of IC1 (CA/CB) controls the driver transistor Q1, and via driver transformer T1 also the switching transistor Q4.
    - From the pulsating voltage produced with Q4 and the free-wheeling diode D22 a new mean is formed with L5 and C28.
    - This DC voltage is refiltered with L1 and C26. The voltage fluctuations across L1 increase with rising output current and are used as information for the current limitation in IC5.2. The attack point of the limitation is approx. 7 A.
  - The output voltage of the switching regulator can be adjusted with trimmer potentiometer R21.
  - ±15 V control: functions analogously; the two switching regulators produce the +15 V and the -15 V from +STABIN and +STABIN respectively. The +15 V regulator comprises the following components: IC3, Q2, T2, Q5, D23, L6, C35, L3, C30, AND IC5.1. The -15 V regulator comprises the following components: IC2, Q3, T3, Q6, D24, L7, C36, L2, C31, and IC4.1. The -15 V regulator is wired in such a way that its output voltage is of the same magnitude as the one of the +15 V regulator (TRACKING MODE) which means that no -15 V can be present when the +15 V are missing. The reference value of the output voltage is adjusted in common with trimmer potentiometer R6.
  - mer potentiometer R6.

    +24 V control: The +24 V are produced from +STABIN with a preset linear voltage regulator (IC8).

- STABILIZER/LIMITER PCB 1.820.792:
  - The +26 V and the -26 V are produced by a preset linear voltage regulators (IC103, IC104) from +STABIN and -STABIN.
  - The supply voltage for a serial remote control (approx. +50 V, unregulated) is produced from +CAPMOT. Two linear voltage regulators are used for limiting the current. IC101 is wired as a current source, the max. current is approx. 1 A. IC102 limits the input voltage of IC101 to approx. 35 V in the event of a short circuit.
  - The comparator IC100 monitors the secondary voltage (ACPWE-D1, ACPWE-B1) of the power transformer; in the event of a power failure it signals T-PWRON = LOW to both CPUs. The machine is switched to STOP and SAFE after 120 ms. If the power failure is shorter than 120 ms, the logic state of the equipment does not change.
  - The crowbar circuits comprising Q101 and Q100 respectively monitor the  $\pm 5.6$  V and the  $\pm 15$  V switching regulator. If one of these voltages is exceeded by approximately 3 V, the corresponding triac fires and short-circuits the  $\pm 5.6$  V to ground and the  $\pm 15$  V to  $\pm 15$  V

# 3.1.1.3 FUSE/SUPPLY FAILURE DETECTOR 1.820.737 GRP59

### Functions:

- Monitoring of all supply voltages in the machine (+5.6 V, +15 V, -15 V, +24 V, +26 V, -26 V, +STABIN, -STABIN, +CAPMOT).
- Indication of supply voltage availability by means of a LED.
- Message (Signal T-SUPVON = LOW on the TAPE DECK PERIPHE-RY CONTROLLER 1.820.762 (GRP20/ELM43), if one of the supply voltages is too low or missing.

# Circuit description:

This circuit can be supplied by three different voltages: by +CAPMOT, by +STABIN or by +26 V; the circuit remains operational even if one or two of these voltages fail. +CAPMOT and +STABIN are decoupled by D2 and D4. Since these two voltages are unregulated and can amount up to 63 V, they are first stepped down to 24 V by IC2. These 24 V and the +26 V are decoupled by D1 and D3 and are regulated by IC1 to 5.0 V  $\pm$  0.1 V (adjustable with R2). This voltage is used to supply the comparators and gates on the circuit board. In addition, it is regulated by IC12 to 2.00 V  $\pm$  0.01 V (adjustable with R47) and serves as a reference to the comparator.

The nine supply voltages are monitored by one comparator each (IC4, 5, 7, 9, 11). The output signals of the comparators are AND-gated (IC6, 3)  $\rightarrow$  T-SUPVON and also buffered for controlling the LEDs (IC8, 10).

Adjustments and test points: refer to 3.3.1

# SPOOLING MOTOR SUPPLY PCB 1.820.777 GRP 31

- Supplies approx. 30 V to the SPOOLING MOTOR DRIVE AMPLI-FIERs 1.820.775 GRP30/33.
- Absorbs the energy released by the spooling motors during the deceleration phase.
- the charging current of the filter capacitor (GRP34) when power is switched on.
- Continuously monitors the current of the spooling mo-

# Circuit description: Power ON procedure:

- ower ON procedure:
  Initially the phase angle control circuits IC2, and consequently the three parallel-connected triacs Q4-6, are blocked. The filter capacitor (GRP34) slowly charges via R52//R53//R54, however, only when the load on the output (±PSVTMOT) is minimal.

  The output voltage (±PSVTMOT) is symmetrized by the resistors R20, 21. The differential amplifier IC4/1 derives an asymmetrical voltage from ±PSVTMOT and discontinuous and disc
- The derives an asymmetrical voltage from ±PSVTMOT and divides it by 10. This voltage is called +Y-SUP. IC2 is supplied via ACPWM-B1...B6 and ACPWM-A2,A5. The
- DC supply voltage is available between pins 11 and 15.
  Since DLQ1 initially blocks the voltages on pins 9 and 13 are identical (approx. 4 V). The Schmitt trigger with open collector output in IC2 is wired as a flip-flop (pins 5, 6, 7). Its output carries approx. 7 V across R36 because the flip-flop has been forced to this state by C9 on pinó when the power was switched on. C9 slowly charges via R18 to UREF (voltage on pin 14 of IC2, approx. 2 V) and remains in this con-
- The main current flows through D4 and D5 into the base of the phototransistor of DLQ2. The phototransistor becomes conductive, pulls the control input pin 17/IC2 to low, and thereby prevents triggering of IC2. As soon as +Y-SUP exceeds the voltage on pin 6
- IC3/2 (UREF2), UREF1 (node R24,26,29) is suddenly connected to pin 5 of IC4/2. This can be checked by TD-PWENB and requires active LOW; TD-PWENB has priority.

- . The current which now flows through DLQ1 and DL1 produces a secondary current in the emitter of DLQ1 in a sudden burst. Q1 becomes conductive and makes Q2 also conductive. Q2 remains conductive because of R23.
- The soft start now begins because Q2 is conductive; D4, 5, and the phototransistor in DLQ2 block; the output of IC2 (pin 2) is enabled via pin 17. The soft-start time is determined by R15, 17 and C6.
- The current across DLQ1 drops slowly. When PSVTMOT or +Y-SUP respectively attains the value (approx. 30 V or 3 V respectively) determined by UREF1 (node 3 V respectively) determined by UREF1 (node R24,26,29), the current through DLQ1 and the control DL1 has attained the nominal value. The current of DLQ1 is converted to a proportional voltage in IC2 and actuates the voltage-controlled phase shifter (IC2, pin 13).
- The control loop is now closed because the declining voltage resulting from the rising load on the output (+PSVTMOT) causes earlier triggering of the triacs and makes more power available to the filter capacitor (GRP34).

# Overvoltage protection:

During spooling functions much power is briefly drawn from the SPOOLING MOTOR SUPPLY. During the deceleration phase the spooling motors function as generators and consequently supply electrical energy. This energy is stored in the filter capacitor (GRP34). The voltage across the latter's terminals rises sharply. However, soon as ±PSVTMOT becomes greater than approx. 32 V, the discrete power Z-diode (IC5, D9, Q7-9) becomes conductive. The released energy is dissipated in the form of heat. DL2 (red) turns on, DLQ2 is enabled and via pin 17 blocks the output driver of IC2 with the result that no additional power from the mains is supplied to the filter capacitor during the deceleration phase.

# Overcurrent protection

If the voltage ±PSVTMOT drops below approx. 17 V because of an overload, IC2 is blocked via IC4/1, IC3/2, IC4/2, and DLQ1; the triacs no longer receive triggering pulses and block. In this case the voltage on IC2/pin 13 is approx. 4 V.

3.1.2 First block

| Consisting of: MP UNIT MASTER MASTER SERIAL INTERFACE                                 |                        |             |
|---|------------------------|-------------|
| MP UNIT MASTER  | 1.820.786              | GRP20/ELM49 |
| MASTER SERIAL INTERFACE   | 1.820.753              | GRP20/ELM48 |
| MASTER PERIPHERY CONTROLLER   | 1.820.728              | GRP20/ELM51 |
| PARALLEL REMOTE INTERFACE   | 1.820.738              | GRP27       |
| SERIAL REMOTE INTERFACE   | 1.820.729              | GRP26       |
| SMPTE/EBU INTERFACE   | 1.820.729<br>1.820.751 | GRP20/ELM50 |
| TAPE DECK DISPLAY DRIVER  | 1.820.768              | GRP50       |
| PUSH BUTTON ASSEMBLY  | 1.820.240              | GRP48       |
| - TAPE DECK INDICATOR PCB   | 1.820.766              |             |
| - TAPE DECK PUSHBUTTON PCB  | 1.820.769              |             |
| OPERATING ASSEMBLY  | 1.820.230              |             |
|   | 1.820.767              | GRP51       |
| I CD LINIT  | 1 820 233              |             |
| - LCD MODULE - LCD CONNECTOR PCB EDIT ASSEMBLY - CUE SENSOR PCB - SHUTTLE CONTROL PCB | 73.01.0125             |             |
| - LCD CONNECTOR PCB   | 1.820.797              |             |
| EDIT ASSEMBLY   | 1.820.250              | GRP49       |
| - CUE SENSOR PCB  | 1.820.765              |             |
| - SHUTTLE CONTROL PCB   | 1.820.776              |             |
| CHANNEL MODE SELECTOR UNIT  | 1.810.335              |             |
| - CHANNEL CONTROL PCB   | 1.820.732              |             |
| TC CHANNEL MODE SELECTOR UNIT   | 1.810.337              |             |
| - TC CHANNEL CONTROL PCB  | 1.820.735              |             |
| HEAD ASSEMBLY IDENTIFIER PCB  | 1.820.795              | GRP60/ELM02 |

# Functional description according to block diagram

Fig. 3.1.1:
The 8-bit data bus of the MP UNIT MASTER is connected directly to the SMPTE/EBU BUS INTERFACE, the PARALLEL REMOTE INTERFACE, the TAPE DECK DISPLAY DRIVER, the MASTER PERIPHERY CONTROLLER, and the MASTER SERIAL INTERFACE. However, the 4-bit address bus is directly connected only to

three assemblies. The same applies to the system clock (TM-ENB), the write/read signal (TM-RW), and three of the five SELECT signals (TM-SL2, TM-SL3, TM-SL6). For the other two assemblies these signals are buffered and output via the MASTER SERIAL INTERFACE. The same applies to the required SELECT signals TM-SL4 and TM-SL5.

The MP UNIT MASTER consequently has direct access to these five assemblies. The assignment of the SELECT signals is as follows:

TM-SL2 -> MASTER SERIAL INTERFACE
TM-SL3 -> SMPTE/EBU BUS INTERFACE
TM-SL4 -> TAPE DECK DISPLAY DRIVER
TM-SL5 -> PARALLEL REMOTE INTERFACE
TM-SL6 -> MASTER PERIPHERY CONTROLLER

To ensure that the MP UNIT MASTER services an interface request as quickly as possible, the interrupt processing method is used. For this purpose an interrupt decoder has been integrated in the MASTER SERIAL INTERFACE. All external interrupt requests (TM-SEIR, TM-REMIR, TM-SHIR, TM-KBIR, AND TA-AUIR) are transmitted to this assembly. On request the latter outputs an interrupt (TM-IRQ) to the MP UNIT MASTER. Via the decoder the MP UNIT MASTER can now determine the unit that needs to be served more quickly than would be possible in polling mode.

The POWER ON RESET of the MP UNIT MASTER (TM-RESMP) is transmitted via the MASTER SERIAL INTERFACE, from where a reset (TM-RESET) is also initiated when the MP UNIT MASTER does not correctly process the program because of a malfunction.

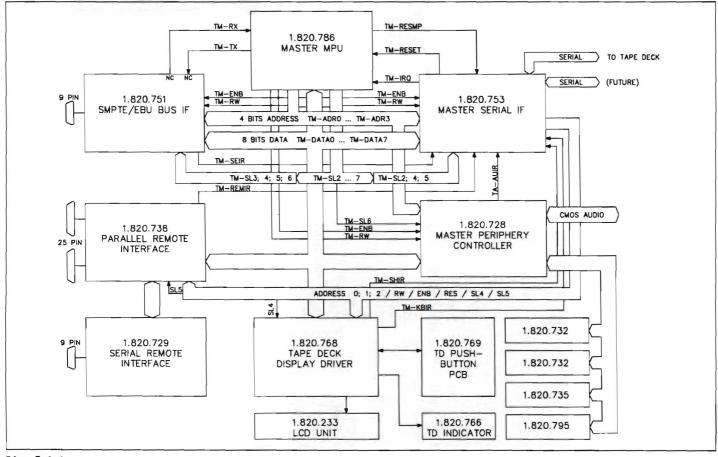


Fig. 3.1.1

### 3.1.2.1 MP UNIT MASTER 1.820.786 GRP20/ELM49

Functions:

■ Central control for the entire A820.

■ All parameters (audio data, tape tensions, etc.) are stored here.

<u>Circuit description:</u>
IC17 is an 8-bit NMOS processor type MC6803-1. The control program comprising 48 K-bytes is stored in three ROMS (IC5, IC16, and IC18). IC8 is a CMOS RAM with a capacity of 8 K-bytes. This RAM is buffered by a lithium battery which means that the data are retained even after the A820 is switched off.

Note: The life of the lithium battery is marked on the battery itself. It should be replaced timely in order to prevent loss of data in the RAM when the recorder is

The addresses AO...A7 of the multiplexed data/address bus are assigned to the address bus with the 8-bit D-latch IC13. The system clock E (ENABLE PULSE) is generated internally by IC17 with quartz accuracy. The binary counter IC7 generates eight reference frequencies from the the inverted (IC9) pulse

The frequency of IC7, pinó, is output as clock frequency (TM-C76K) via the 8-bit bus driver (IC2) but is not used in this application (spare).

The clock signal TM-C307K (bufferedd with IC2) can be selected with a jumper (JS7, JS8, and JS9) from three frequencies. This signal is not used (spare).

minimize the power consumption, the system clock E is also applied to the OE (OUTPUT ENABLE) inputs of the ROM and RAM (IC8, IC15, IC16, and IC18).
IC12 blocks the RAMSL signal when the RESET signal is

available. This prevents access to the RAM during the reset phase.

IC4 and IC6 combine the R/W signal with the system clock E for correct timing during read/write access.

IC14 monitors the 5 V supply and produces a defined reset pulse during power on as well after transient power failures having occurred during operation. With key S1, the system can be reset manually.

With the TM-RESET signal the MASTER SERIAL INTERFACE can also trigger a reset on the MP UNIT MASTER.

The jumpers JS12...JS17 define the operating mode of the MP UNIT MASTER IC17. These jumper settings are fixed.

The address decoder IC11 (two 2-bit binary decoders) produces the CHIP SELECT signals from the addresses A13, and A15 for the ROMs, the RAM, and also supplies the en-able signal for IC3. IC3 is a bidirectional data bus buffer, the dire write signal R/W. the direction of which is determined by the read/

additional address decoder IC5 (3-bit binary produces the SELECT signals TM-SL2...SL7 depending on the addresses A10...A15. The SELECT signals TM-SL2...5 are used for the interface assemblies which are addressed by means of memory mapping (see Fig. 3.1.2).

control bus is buffered by an 8-bit bus driver (IC1) and one of the gates of IC6.
JS3, JS4, JS5, and JS6 are inserted and connect the si-

gnals TM-BUSSW and TM-DRENB to the serial interface.

IC12 buffers the serial inputs/outputs for a terminal.

IC2 buffers the address and clock signals as well as the reset for the peripheral devices.

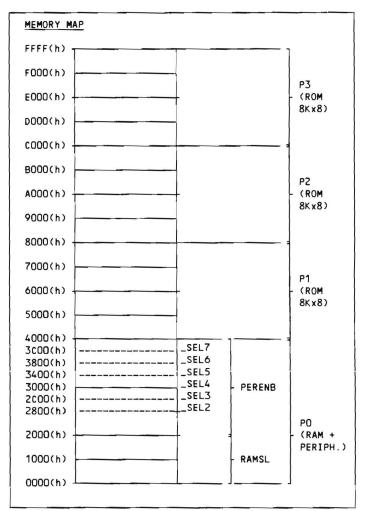


Fig. 3.1.2

# MASTER SERIAL INTERFACE 1.820.753 GRP20/ELM48

Functions:

- Interface to the TAPE DECK SERIAL INTERFACE and the (future) INTERNAL SYNCHRONIZER. ■ Interface
- Buffering of the address bus and control bus to the RALLEL REMOTE INTERFACE as well as to the TAPE DECK DI-SPLAY DRIVER.
- IRQ triggering in the MP UNIT MASTER 1.820.786 as well as decoding of the interface requesting an IRQ.

Circuit description:
IC5, a PIA (PERIPHERAL INTERFACE ADAPTER) and the two
SSDAs IC6 and IC9 (SYNCHRONOUS SERIAL DATA ADAPTER) are
integrated in the data and address bus of the MP UNIT MASTER and permit direct access by the processor. The required address decoding is performed by IC11 (2-bit binary decoder).

The communication with the INTERNAL SYNCHRONIZER and the TAPE DECK SERIAL INTERFACE takes place through serial data transmission. The required parallel/serial or serial/parallel conversion is performed by the two SSDAs (IC6 and IC9). Data is transmitted by means of a hardware handshake. The required data clock is derived from the system

clock "E" by means of frequency division with a twin 4-bit binary counter (IC12) and after buffering by IC3 (8-bit bus driver) it is input to the two units. The serial signals are buffered by IC4 (8-bit bus driver).

With the two RS422 line drivers (IC1 and IC2) the control bus and the address bus are connected to the PARALLEL RE-MOTE INTERFACE and to the TAPE DECK DISPLAY DRIVER with symmetrical voltage. They also fulfill an output function, like IC5, IC6, and IC9.

Two retriggerable monoflops (IC13) must be retriggered in regular intervals by the MP UNIT MASTER which is always the case as long as the processor executes its program correctly. In the event that a malfunction occurs or the program "hangs", a LOW pulse that reinitializes the processor (RESET) is output by IC13.

IC8, IC7, IC10 and part of IC5, constitute a priority decoder for IRQ requests. For this purpose the five IRQ sources TM-SEIR, TM-REMIR, TA-AUIR, TM-SHIR, TM-KBIR as well as those of the two SSDAs IC6 and IC9 are logically combined by IC7 and IC10 with an 8-bit word from port PA (IC5) and input to the 8-to-3 priority encoder IC8. The 3-bit word on the output of IC8 (AO, A1, A2) is read via the port PB (IC5), after IC8 has triggered an IRQ. If several IRQs are triggered at the same time, the 3-bit word on the output of IC8 contains the three bits that correspond to the most significant input of IC8.

Like Q1, IC3 (8-bit bus driver) also serves as a buffer.

3.1.2.3 MASTER PERIPHERY CONTROLLER 1.820.728 GRP20/ELM51

### Functions:

- Interface to the AUDIO section, including the required
- TTL/CMOS level conversion.
   Connection to the channel control units CHANNEL MODE SE-CH1/CH2/CODE, as well as to the HEAD ASSEMBLY IDENTIFIER PCB.

# Circuit description:

The two PIAs (IC1 and IC2) are connected to the address, data, and control bus of the MP UNIT MASTER and consequently to the latter's direct access.

The connection to the three CHANNEL MODE SELECTORS (CH1, CH2, CODE) and to the HEAD ASSEMBLY IDENTIFIER PCB is established with IC1, via the AUDIO COMMAND BUS. The bidirectional data bus is buffered with IC10, port PB (IC1) is the interface. IC11 (8-bit bus driver) buffers the control bus as well as the two 1-bit data signals supplied to the four assembling CHANNEL MODE SELECTOR CH4/CH2/CODE and the four assemblies CHANNEL MODE SELECTOR CH1/CH2/CODE and HEAD ASSEMBLY IDENTIFIER PCB.

the audio command bus and the PIA (IC1) the MP UNIT MASTER receives the information from the channel selectors (SAFE/READY), the output selectors (INP, SYNC, REC), as well as from the solder bridges on the HEAD ASSEMBLY IDEN-TIFIER.

These switches are connected to the audio command bus via 8-to-1 multiplexers.

The feedbacks for the pilot lamps are transmitted to the lamp drivers (binary 3-to-8 decoder) by the MP UNIT MASTER via the PIA and the audio command bus. (See Fig. 3.1.3).

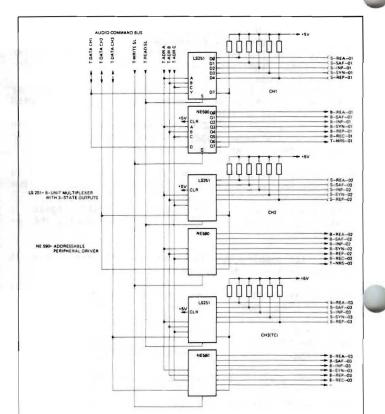


Fig. 3.1.3

The connection to the AUDIO section is established with the second PIA (IC2). Also in this case the PB port is used for the data BUS, however, the latter is only unidirectional in the output direction. The address bus (PA4...PA7) and the control bus are output by the PA port. IC7, IC5, and IC6 act not only as buffers but also perform the required conversion from TTL to CMOS level.

The audio parameters are written into the audio amplifiers by the MP UNIT MASTER via the PIA (IC2) and the BUS converter (Fig. 3.1.4). ■ With 8-way D-flip-flop:

- - Input and output level 0, 4, 8 or 10 dBm
     Changeover INP, SYNC, REP

  - MUTING
- Equalization 3180 µs
- Erase current
- Record drop-in or drop-out
- 8-bit digital/analog converter (256-step attenu-With ator):
  - · Reproduce level
  - Reproduce frequency response (treble, bass)
  - Reproduce equalization

  - Record level Record frequency response (treble)
  - Record equalization
  - Bias current

The signals TA-ACTO1, TA-ACTO2, and TA-ACTTC from the audio section are logically combined with the PIA outputs CA2 and CB2 by three triple NAND gates (IC4) and returned as the control signals CA-CHSO1, CA-CHSO2, and CA-CHSTC to

the audio section for address decoding.

Through port PA3 the desired operating mode MONO or STEREO is output as CA-MONO via the D-flip-flop IC9 and the buffer IC7, and subsequently read back as the feedback TA-ACTMO via port A3.

IC8, a retriggerable monoflop, is continually retriggered by the program via CA2. The output signal CA-SAFE is, therefore, only active (LOW) if continuous retriggering takes place.

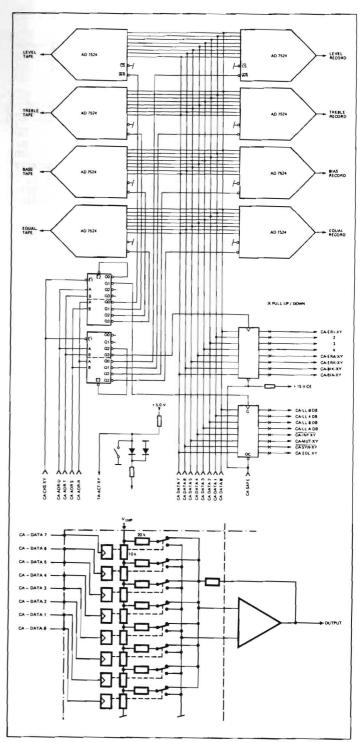


Fig. 3.1.4

#### 3.1.2.4

PARALLEL REMOTE INTERFACE 1.820.738 GRP27

#### Function:

Interface between MP UNIT MASTER and

- Parallel remote control.
- SERIAL REMOTE INTERFACE PCB.
- Synchronizer port.

Circuit description: IC3, a KEYBOARD DISPLAY INTERFACE, establishes the nection between the SERIAL REMOTE INTERFACE, the parallel remote control (control and acknowledgement lines), the synchronizer port, and the MP UNIT MASTER. The bidirectional data bus is connected directly to the MP UNIT MASTER. However, the control signals for IC3 (CHIP SELECT, read/ However, the control signals for IC3 (CHIP SELECT, read/write, CLOCK, address 0 and RESET) arrive via the MASTER SERIAL INTERFACE. These signals are brought to TTL level by the two RS422 line receivers IC4 and IC2. These signals are preprocessed for IC3 by IC7, IC8, IC1B (2-bit binary decoder) and IC2.

eight inputs RLO...RL7 of IC3 are connected to the The SERIAL REMOTE INTERFACE to ensure that the data from al remote port are accepted when the signals ...ROW5 (OE) of IC5 are active. But also the inputs the PARALLEL REMOTE or SYNCHRONIZER ports are conserial ROWO...ROW5 nected to the inputs RLO...RL7 of IC3 after they have been buffered by comparators via IC10 or IC6 respectively, when IC10/IC6 are enabled by the signals ROW6 or ROW7 of IC5. The PARALLEL REMOTE as well as the SYNCHRONIZER ports are scanned by IC3 with the latter's outputs SLO...SL3 via the binary decoder IC5.

The outputs BO...B3 and AO...A3 of IC3 are connected by IC3 to a 6-bit D-register (IC9) and an 8-bit D-register (IC14), and are stored by the latter after the data have been accepted. For this purpose the data transfer signals L6 and L7 are decoded by IC1A (binary decoder). The outputs of IC9/IC14 are transmitted through buffers to the PARALLEL REMOTE and SYNCHRONIZER ports.

# SERIAL REMOTE INTERFACE 1.820.729 GRP26

### Functions:

- Serial/parallel and parallel/serial conversion from/to the SERIAL REMOTE port.
- Transfer/acceptance of data from/to the PARALLEL REMOTE INTERFACE.

## Circuit description:

SERIAL REMOTE INTERFACE is connected directly to PARALLEL REMOTE INTERFACE and establishes the connection

IC9, an RS422 transceiver, establishes the connection between the serial port and the MPU IC8. The latter performs the serial/parallel conversion. The data are transmitted to the PARALLEL REMOTE INTERFACE via IC4 and IC1. Both 8-D-registers are used as 1-byte memories in order permit asynchronous transmission. For this purpose the MPL (IC8) writes the byte into IC4 and connects it via the

address decoder IC2 to the output (IC4). The pulse shaper (EXOR IC3) forms a clock pulse from the T-SLO signal, IC1 now accepts the data from IC4. With the T-OE signal these data are connected to the output of IC1 and accepted by the PARALLEL REMOTE INTERFACE (IC3). Since the T-SLO signal is also read by the MPU (IC8) via the input P10, the MPU knows when the last data have been accepted so that it can output the next byte from the internal RAM. The data transfer is thus controlled by the MP UNIT MASTER.

The data to be transmitted are already latched in the PA-RALLEL REMOTE INTERFACE and are read by the MPU (IC8) via IC5. IC7 is a ROM whose addresses are controlled by IC6. The parallel/serial conversion is again performed by IC8, the output via IC9.

### 3.1.2.6 SMPTE/EBU BUS INTERFACE 1.820.751 GRP20/ELM50

# Function:

Interface between the MP UNIT MASTER and the SMPTE/EBU bus connector.

# Circuit description:

is an 8-bit NMOS microprocessor with a clock frequen-IC17 is an 8-bit NMOS microprocessor with a clock frequency of 4 MHz; the corresponding control program is stored in ROM IC16. The addresses AO...A7 are assigned to the address bus by IC15 (8-bit D-latch). IC5 (binary decoder) is the address decoder. IC18 is an ACIA (ASYNCHRONOUS COMMUNICATION INTERFACE ADAPTER) for serial communication. This adapter is designed not only for RS232 but also RS422. The driver for the RS232 output is IC3; IC11 is used for RS422. The corresponding operating mode is seused for RS422. The corresponding operating mode is selected with jumper JS2. IC7 is the serial receiver; the selection between RS232 and RS422 is made with the jumpers JS5, JS6, and JS7.

|     | RS232 | RS422 |
|-----|-------|-------|
| JS2 | B-A   | B-C   |
| JS5 | B-A   | B-C   |
| JS6 | B-A   | B-C   |
| JS7 | B-A   | B-C   |
|     |       |       |

The clock required for serial output is derived from system clock TM-ENE of the MP UNIT MASTER via IC19 (4 binary counter). Two baud rates can be jumper-selected:

JS3 A-B = 1200 baud

JS3 C-B = 38400 baud for SMPTE/EBU bus or 9600 baud for RS232/RS422 interface

IC10 is a 14-bit counter that is used for detecting the BREAK character on the SMPTE bus. Via pin11 the counter is BREAK character on the SMPTE bus. Via pin11 the counter is reset by each transmitted or received signal. If signals are missing for a certain period (468.75 µs or 576 E-signal pulses), IC6 outputs L level. If jumper JS8 is set to B-C, the DCD signal is produced for IC18 which means that an interrupt is signalled to IC17 via the IRQ1 line. The interrupt program of the CPU (IC17) reads the status register IC18 and a BREAK character is detected. The corresponding software subsequently sets the bus interface to the active state.

3.1.2.7 TAPE DECK DISPLAY DRIVER 1.820.768 GRP50

| 1.820.240  | GRP48   |
|------------|---|
| 1.820.769  |   |
| 1.820.766  |   |
| 1.820.230  |   |
| 1.820.767  | GRP51   |
| 1.820.233  | GRP52   |
| 73.01.0125 |   |
| 1.820.797  |   |
| 1.820.250  | GRP49   |
| 1.820.765  |   |
| 1.820.776  |   |
|            | 1.820.766<br>1.820.230<br>1.820.767<br>1.820.233<br>73.01.0125<br>1.820.797<br>1.820.250<br>1.820.765 |

#### Functions:

- Interface for display and keyboard.
- Analog/digital conversion of the analog signals from the SHUTTLE CONTROL potentiometer.
- Evaluation of the CUE SENSOR pulses.

### Circuit description:

analog signal ANM-SH2 from the wiper of the SHUTTLE CONTROL potentiometer is transformed by IC7/IC9 (ADC) 8-bit data word and placed on the data bus of the MP

The CUE SENSOR is located in the EDIT assembly. The dual barrier of the CUE SENSOR supplies the two light TTL pulses TM-CUE1/TM-CUE2. The edge steepness of the two pulses is refreshed by the two inverting Schmitt triggers (IC14) and placed on the 4-bit D-register IC8. Two NAND pulses (IC14) and p pulses is refreshed by the two inverting Schmitt triggers (IC14) and placed on the 4-bit D-register IC8. Two NAND gates (IC6) form an RS flip-flop that determines the counting direction (UP/DOWN) for the two 4-bit up/down counters IC10 and IC12, based on the phase relation of the two pulses TM-CUE1, TM-CUE2, by means of the EXOR gates (IC5). The register outputs of the two up/down counters IC10 and IC12 are placed on the data bus of the MP UNIT MASTER. The required ENABLE signal is supplied by the ad-MASTER. The required ENABLE signal is supplied by the address decoder IC18.

IC21, an RS422 line receiver, transfers the SELECT signal TM-SL4 and the three addresses AO...A2 to the MP UNIT MA-STER 1.820.786 via the address decoder (IC18). The read/write signal (W), the reset pulse (RES), and the clock (ENB) are accepted by the MP UNIT MASTER via the

clock (ENB) are accepted by the MP UNIT MASTER via the second RS422 line receiver (IC22), and after logical combination are made available to IC9, IC8, and IC13.

LC DISPLAY UNIT is linked to the TAPE DECK DISPLAY DRIVER by connector P4.

The keyboard/display interface IC13 establishes the connection between the MP UNIT MASTER and the following units:

IC4 is a DUAL PORTED FIFO chip with a storage capacity of 128 bytes. It is used as a bidirectional data buffer for exchanging information between the two MPUs.

The data are written by the MPU IC17 via IC9 flip-flop) into IC4 from where they are read I (8-bit flip-flop) into IC4 from where they are read by IC13 (8-bit bus driver). The second port of IC4 is connected to the data bus of the MP UNIT MASTER via IC2 (8-bit D-flip-flop) and IC1 (8-bit bus driver).

## a) TAPE DECK INDICATOR PCB 1.820.766

IC23 is wired as a constant-current source (approx. 200 mA) and is used for limiting the inrush current of the incandescent lamps. The incandescent lamps are switched on by the dual NAND drivers IC1, IC2, and IC3. These are controlled by IC13 via a 6-bit D-register (IC4).

## b) PUSHBUTTON/DISPLAY PCB 1.820.767

The ten 7-segment displays (with common anode) on the PUSHBUTTON/DISPLAY PCB as well as the LED matrix DL1.0...1.7, DL4.0...4.7, DL5.0...5.7) are controlled in multiplex mode.

All segments, the decimal points, and all cathodes of the

LED matrix are controlled by LED segment driver IC11
The common anodes of the corresponding 7-segment d display (DLZ1...DLZ10) are controlled by the signals TM-DO...TM-D9; the anodes of the LED matrix are controlled by the signals TM-L4 and TM-L5: These signals are produced by two binary demultiplexers IC19 and IC20 based on the specifications of IC13, and are buffered by the transistors

# c) TAPE DECK PUSHBUTTON PCB 1.820.769

The Hall-effect buttons on the PUSHBUTTON/DISPLAY PCB are wired in a matrix. Scanning for a pressed button is performed by IC 14, an addressable 8-bit latch, in four rows (TM-EN1...TM-EN4). The TM-ENO signal is responsible for the buttons of the TAPE DECK PUSHBUTTON PCB.

The keyboard/display driver IC13 periodically outputs the five signals TM-ENO...EN4 and each time reads via its inputs RLO...RL7 the corresponding column of the keyboard in order to determine whether or not a button has been in order to determine whether or not a button has been pressed. If this is the case, the IRQ TM-KBIR is trigger3.1.2.8

CHANNEL MODE SELECTOR UNIT 1.820.732

- CHANNEL CONTROL PCB 1.820.732 TC CHANNEL MODE SELECTOR UNIT 1.

- TC CHANNEL CONTROL PCB 1.820.735

#### Functions:

- Reading the five buttons (READY/SAFE, INPUT/REPRO/SYNC) and transferring the information to the MPU MASTER  $\,$  CON-
- Driving the six pilot LEDs (REC/READY/SAFE, INPUT/RE-PRO/SYNC) or the seven pilot LEDs (REC/READY/SAFE, IN-PUT/REPRO/SYNC, CODE LEVEL), resp.

Circuit description:
The control signals T-SADA, T-SADB, T-SADC, T-READSL, T-WRTSL, and the data signal T-DT-XY are connected to the data bus of the MP UNIT MASTER via the MASTER PERIPHERY CONTROLLER. The five push buttons are scanned by the 8-to-1 data selector (IC2).
The acknowledgements from the MP UNIT MASTER are produced by a binary 3-to-8 decoder (IC1) by driving the corresponding six/seven LEDs.

sponding six/seven LEDs.

The 5 V supply is derived from the +15 V supply by means of a series regulator (IC3).

HEAD ASSEMBLY IDENTIFIER PCB 1.820.795 GRP60/ELMO2

■ Transmitting the equipment type to the MP UNIT MASTER based on up to 7 solder bridges on the circuit board in the headblock.

Circuit description:

The controls signals T-SADB, T-SADC, T-READSL, and the data signal T-DT-MP are connected to the data bus of the MP UNIT MASTER via the MASTER PERIPHERY CONTROLLER. IC1 (8-UNIT MASTER via the MASTER PERIPHERY CONTROLLER. IC1 (8-to-1 data selector) transmits to the MP UNIT MASTER the information for determining which of the seven solder bridges JS1...JS7 are set.

### 3.1.3 Second block

| Consisting of:                 |           |             |
|--------------------------------|-----------|-------------|
| MP UNIT TAPE DECK CONTROL      | 1.820.785 | GRP20/ELM46 |
| TAPE DECK SERIAL INTERFACE     | 1.820.763 | GRP20/ELM47 |
| TAPE DECK PERIPHERY CONTROLLER | 1.820.762 | GRP20/ELM43 |
| TAPE LIFTER CONTROL            | 1.820.773 | GRP46,47    |
| OPTO SENSOR                    | 1.820.793 | GRP44       |
| TAPE DECK COUNTER/TIMER        | 1.820.761 | GRP20/ELM44 |
| MOVE SENSOR                    | 1.820.770 | GRP45       |
| MOTOR TACHO                    | 1.820.771 | GRP36,37    |
| SPOOLING MOTOR CONTROLLER      | 1.820.760 | GRP20/ELM45 |
| SPOOLING MOTOR DRIVER          | 1.820.759 | GRP20/ELM40 |
| SPOOLING MOTOR DRIVE AMPLIFIER | 1.820.775 | GRP30,33    |
| TAPE TENSION SENSOR            | 1.820.772 | GRP42,43    |
| CAPSTAN CONTROL UNIT           | 1.820.764 | GRP20/ELM41 |
| CAPSTAN INTERFACE              | 1.820.727 | GRP20/ELM42 |
| TACHO SENSOR ELECTRONICS       | 1.021.695 | GRP38       |
| CAPSTAN MOTOR DRIVE AMPLIFIER  | 1.820.774 | GRP39       |
|                                |           |             |

<u>Functional</u> description according to the block diagram

Fig. 3.1.5:
The 8-bit data bus, the address bus, and the control bus are connected to five periphery assemblies. An address decoder in the MPU TD CONTROL produces the SELECT signals that are assigned as follows:

TD-SL2 -> TD-SL3 -> TAPE DECK PERIPHERY CONTROLLER SPOOLING MOTOR CONTROLLER

TD-SL4 -> TD-SL5 ->

TAPE DECK SERIAL INTERFACE TAPE DECK COUNTER/TIMER -> TD-SL6

CAPSTAN INTERFACE TD-SL7

When power is switched on, a reset (TD-RESMP) is output to the TAPE DECK SERIAL INTERFACE: The TAPE DECK SERIAL IN-TERFACE is reset and supplies a reset (TD-RES) to the remaining four assemblies.

communication between the MPU MASTER CONTROL and the MP UNIT TAPE DECK CONTROL is performed via the TAPE DECK SERIAL INTERFACE by means of a serial link to the MASTER SERIAL INTERFACE.

An interrupt can be triggered by the TAPE DECK SERIAL IF, the TAPE DECK COUNTER/TIMER, and the CAPSTAN INTERFACE. These are ORed and serviced in polling mode by the MPU.

The communication between the MP UNIT TAPE DECK CONTROL and the CAPSTAN MOTOR CONTROL UNIT takes place via the CAPSTAN IF. For this purpose the two data buses TD-DATA and TC-DATA are interconnected via two PIOs. The communication is performed in IRQ mode.

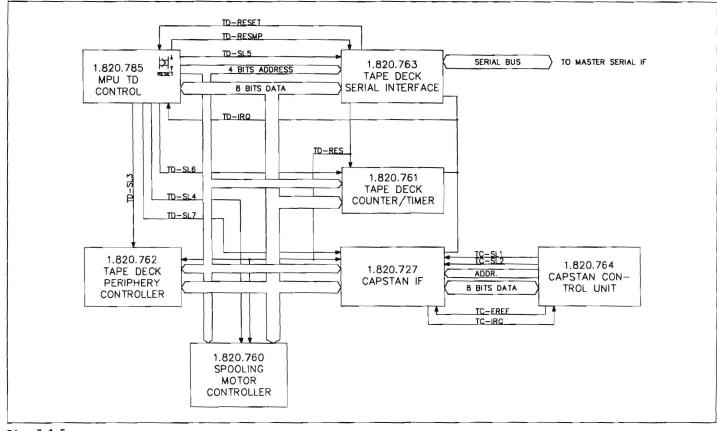


Fig. 3.1.5

#### 3.1.3.1

MP UNIT TAPE DECK CONTROL 1.820.785 GRP20/ELM46

## Functions:

- Slave processor of the MP UNIT MASTER for function-oriented control of the two spooling motors and the capstan motor.
- The status field of the tape deck is buffered in the RAM and on request transmitted to the MP UNIT MASTER.

Circuit description: IC17 is an 8-bit NMM is an 8-bit NMOS processor type MC 6803-1. trol program comprising 48 K-bytes is stored in three ROMs (IC15, IC16, and IC18). IC8, a CMOS with a capacity of 2  $\,$ K-bytes serves as the RAM.

The 8-bit D-latch IC13 assigns the addresses AO...A7 of multiplexed data/address bus to the address bus. system clock E (ENABLE PULSE) is generated internally by IC17 with quartz accuracy. The binary counter IC7 generates eight reference frequencies from the inverted (IC9) pulse.

frequency of pin6 (IC7) is output as clock The frequency (TD-C76K) via the 8-bit bus driver (IC2) to the CAPSTAN MOTOR DRIVE AMPLIFIER, the SWITCHING STABILIZER, and the SPOOLING MOTOR CONTROLLER. One of three frequencies for clock signal TD-C307K can be selected (after been buffered by IC2) with a jumper (JS7, JS8, and JS9).

the system clock E is minimize the power consumption, applied to the OE inputs (OUTPUT ENABLE) of the and RAM (IC8, IC15, IC16, and IC18).

blocks the RAMSL signal when the RESET signal available in order to prevent access to the RAM during the reset phase.

With IC4 and IC6 the R/W signal is logically combined with the system clock E for correct timing during read/write access.

TAPE DECK SERIAL INTERFACE 1.820.763 GRP20/ELM46

# Functions:

- communication between MP UNIT MASTER and MP UNIT TAPE DECK CONTROL.
- Analog/digital conversion of the output signals of TAPE TENSION SENSORs and the SPOOLING MOTOR DRIVE AMPLI-FIERs (motor current).

description: TDS-TX, TDS-DTR, TDS-CTS) serial TTL bus from/to the MASTER SERIAL INTERFACE is buffered by the 8-bit bus driver IC1 and connected to IC6, an SSDA (SYN-CHRONOUS SERIAL DATA ADAPTER). The serial/parallel conversion (receive) or the parallel/serial conversion (send) is performed synchronously by IC6. For this purpose the MA-STER SERIAL INTERFACE supplies the send/receive clock TDS-CLK, which is buffered by IC1. When a byte is received, IC6 triggers an IRQ (TD-IRQ) via IC12 at the processor of the MP UNIT TAPE DECK CONTROL.

8-bit bus transceiver (IC2) buffers the data bus directions that leads from IC6/IC7 to the MP UNIT TAPE DECK CONTROL.

A special address decoder has been implemented with IC8, quad 2-to-1 data selector with inverting outputs. The switching direction (A or B to Y) is determined by the level of the address TD-ADR3. The Y outputs are activated by the signal TD-SL5 which is the select signal of this assembly.
In this way IC2 receives an enable signal from IC8 only

when the TAPE DECK SERIAL INTERFACE is selected by the

IC14 monitors the 5 V supply and produces a defined reset pulse during power on as well after transient power failures in operation. The system can be reset manually with kev S1.

With the TD-RESET signal the TAPE DECK SERIAL INTERFACE can also trigger a reset on the MPU. For this purpose the signal is ORed with button S1 through the two resistors R6 and R7. The TD-RESET signal is active LOW and via R6  $\,$ pulls pin2 of IC14 to LOW potential.

jumpers JS12...JS17 define the operating mode of the MPU IC17. These jumper settings are fixed.

The address decoder IC11 (two 2-bit binary decoders) produces the CHIP SELECT signals from the addresses A13, A14, and A15 for the ROMs, the RAM, and also produces the enable signal for IC3. IC3 is a bidirectional data bus buffer, the direction of which is determined by the read/ write signal R/W.

An additional address decoder IC5 (3-bit binary decoder) produces the SELECT signals TD-SL2...-SL7, depending on the addresses A10...A15. The SELECT signals TD-SL2...5 are used for the interface assemblies which are addressed by means of memory mapping.

The control bus is buffered by an 8-bit bus driver (IC1). IC2 buffers the address signal and clock signals as well as the reset (TD-RESMP) for the TAPE DECK SERIAL IF.

signal TD-SL5. In all other cases IC2 has high impedance on the output side, and the data bus DECK CONTROL is in the correct state. and the data bus of the MP UNIT TAPE

The analog voltage of the left and right tape tension sensors (AN-TTL and AN-TTR) are converted by the analog/digital converter IC7. The analog signals AN-ICL and AN-ICR (voltage proportional to the actual spooling motor current) also need to be digitized. Because the actual voltage ranges from -5 V...+5 V, these voltages must first be transformed to the range required by IC7 (0...+5 V) by means of IC3. IC4 and IC5 are also designed for such level conversion. conversion, however application (spare). however, they are not required

Two retriggerable monoflops (IC11) are retriggered in reg intervals by the START SIGNAL for IC7. Should this gering fail, a reset (TD-RESET) is initiated by the ular retriggering fail, a reset (TD-RESET) is initiated by the MP UNIT TAPE DECK CONTROL and the peripheral equipment is reset at the same time by TD-RES. The TD-RESMP signal is output by the MP UNIT TAPE DECK CONTROL based on a POWER ON RESET or manual resetting with S1, and it is NORed by a gate of IC10 in order to reset the peripheral equipment.

TD-TRSP

TD-SUPVON

# TAPE DECK PERIPHERY CONTROLLER 1.820.762 GRP20/ELM43

- Controlling the brake solenoids and the two TAPE LIFTER CONTROLS.
- Reading the sensor signals.

Circuit description:

two PIOs (PARALLEL INPUT/QUTPUT) IC1 and IC2 are connected to the data bus, address bus, and control bus of the MP UNIT TAPE DECK CONTROL and consequently to the direct access of the MPU.

read in through port following signals are (PAO...PA7) of the first PIO (IC1):

TAPE LIFTER POSITION SENSOR, Left: TAPE LIFTER POSITION SENSOR, right: TRANSPARENT LEADER SENSOR: TD-RARP1, TD-RARP2 SUPPLY VOLTAGE ON:

The signals T-IRES1 and TD-SHLD are not used.

Port B of the PIO (IC1) is an 8-bit output. Following the buffering with IC12, the enable signal for the spooling motor control (TD-PENBL, TD-PENBR), the enable signal of the spooling motor power supply (TD-PWENB), and the reset (TD-CRES) are output to THE CAPSTAN CONTROL UNIT.

TAPE LIFTER CONTROL 1.820.773 GRP46,47 Tape lifter motor assembly (left) 1.820.140 GRP46 Tape lifter motor assembly (right) 1.820.141 GRP4

Functions:

- Transmission of the current position of the pinch roller assembly (2 bits per unit) to the TAPE DECK PERIPHERY CONTROLLER 1.820.762 (GRP20/ELM43).
- Control of the motor as specified by the TAPE DECK PERI-PHERY CONTROLLER

Circuit description:

(This description relates to the left-hand motor, signal the right-hand motor are indicated names for

■ The position of the pinch roller assembly is determined two forked IR light barriers in one housing (DLQ1) between which a specially designed shutter moves. The output signals of the light barriers are converted by IC1 (DUAL DIFFERENTIAL LINE RECEIVER with Schmitt trig ger characteristic) to TTL signals: TD-RALP1/TD-RALP2 {TD-RARP1/ TD-RARP2} and transmitted to the TAPE DECK PERIPHERY CONTROLLER (GRP20/ELM43).

OPTO SENSOR PCB 1.820.793 GRP44

Function:
■ Checks whether or not a tape is threaded and supplies a message to the TAPE DECK PERIPHERY CONTROLLER 1.820.762 (GRP2O/ELM43) by means of the TTL signal TD-TRSP.

<u>Circuit description:</u>
The sensor consists of a double light barrier implemented with two phototransistors in one housing (QP1) and two with two phototransistors in one housing (QP1) and two LEDs (DL1, infrared / DL2, red). In the absence of tape the two phototransistors are supplied with light not only by the two light sources but also by ambient light; no current flows from the node between the two transistors to the inverting input of the opamp IC3/pin 2 (manufacturing

The tape transport assembly is controlled with PBO...PB3. The timer chip IC10 is wired as a free-running oscillator with a frequency of approx. 240 Hz. IC9 (two-way JK flipflop) produces two square-wave signals with a frequency of 60 Hz and 90° phase shift. IC and IC6 (quad NAND each) constitute an electronic changeover switch that is controlled by PBO or PB1 respectively via the D-register (IC5). As a result either the output Q2 or the inverted output  $\overline{\text{Q2}}$  is connected to one NOR gate (IC8) each. PB2 and PB3 are connected to one NOR gate (IC8) each after being delayed by three D-registers. The transfer signal for the octo D-register (IC5) is supplied by the inverted Q2 output of IC9. Buffer IC11 transfers the gated signals to the two TAPE LIFTER CONTROLS.

Port PB of the PIO (IC2) controls the brake solenoids. The level is matched by IC13, IC14, and IC15 (dual OR drivers).

The two comparators (IC3) digitize the +YSUP signal which is read in via PAO and PA1. PA2...PA7 are not used.

■ Motor control: A 3-phase delta-connected synchronous mois used. Terminals b and c are connected to ground, terminals a and f as well as d and e are connected to two switching output stages (Q8, 9, and Q10, 11 respectively). These switch between + and -26 V with a frequency of 60 Hz. The phase shift of + or -90° between the control signals TR-RALC1 and TD-RALC2 (TD-RARC1, TD-CARC2) determine the sense of the motor rotation. The RARC2) determine the sense of the motor motor moves the assembly out, when the TD-RALC2 signal leads relative to TD-RALC1 {TD-RALC2, TD RALC1}. When motor leads relative to ID-RALC1 {TD-RALC2, TD RALC1}. When the enable signal TD-RALEN {TD-RAREN} changes to HIGH, the switching output stages are blocked and the motor stops.

The two control signals TD-RACL2 and TD-RALC1 {TD-RARC2 and TD-RARC1} as well as the enable signal TD-RALEN {TD-RAREN) are supplied by the TAPE DECK PERIPHERY CONTROL-LER 1.820.76 (GRP20/ELM43).

tolerances are compensated with R28). When tape is the upper phototransistor is dark, its impedance s to high, and the current equilibrium is upset, changes to a differential current flows to the input of the opamp (IC3/pin 2). The output pin 3 of IC3 changes to positive (gain adjustable with R26).

The Schmitt trigger IC2/1 (comparator with open-collector output) buffers the output signal of IC3/1 and pulls it to It is transmitted as the TD-TRSP signal to the TAPE DECK PERIPHERY CONTROLLER 1.820.762 (GRP20/ELM43).

Adjustments and test points: refer to 3.3.2.

### 3.1.3.6 TAPE DECK COUNTER/TIMER 1.820.761 GRP20/ELM44

#### Functions:

- Evaluation of the output signals from the (spooling)
- MOTOR TACHO PCBs and the MOVE SENSOR.
   Supporting the MPU TAPE DECK CONTROL in the computations by means of a programmable timer.

 $\begin{array}{lll} \underline{\text{Circuit description:}} \\ \hline \text{The} & \text{MP UNIT TAPE DECK CONTROL has direct access} \\ \end{array}$ to this unit via the data bus, address bus, and control bus. The two signals TD-MOVE1 and TD-MOVE2 originate from the dual forked light barrier in the MOVE SENSOR. These are two square-wave TTL signals with a phase shift of 90° which are buffered with IC1 (six inverting Schmitt triggers) and are taken to one D-register (IC5) each. The transfer to the output 80/70 is effected with the positive edge of the processor clock (TD-ENB). IC5 and IC6 (4 EXORs) constitute a four-edge evaluator. The transfer value of TD-MOVE2 (7Q) is shifted through via 6D, 6Q, 5D to the output 5Q by means of two clock pulses. Via an EXOR it is gated with the actual level of TD-MOVE1 and taken as the data signal to IC12 (D-flip-flop). The data signal identifies the running direction (H = forward, L = reverse). The D-flip-flop IC12 together with two NAND gates (IC11) constitutes electronic change-over switch for the 8-bit up/down counter (IC19 and IC18).

The input signals TD-MOVE1 and TD-MOVE2 are also EXORed and shifted through via 4D to 1Q by means of four clock pulses or to 2Q by three clock pulses. The logical combi-

a second EXOR produces the counting pulses nation with (TD-MVCLK) which are now transferred via the two NAND gates (IC11) to the up/down counter and after inversion with IC7 to the SYNCHRONIZER port. The TD-MVCLK signal is a pulse with a duration of 0.8 μs and is delayed relative to the direction signal (TD-MVDIR) by an additional 0.8  $\mu s$ . Only when 4D and 4Q (IC5) have different levels is the NAND gate (IC11) enabled for connecting the processor clock (TD-ENB). Th be accepted by IC12. This is necessary for the data signal to

The 8-bit counting value of IC19 and IC18 is connected IC17 (8-bit bus driver) to the 8-bit bus transceiver when an enable is available from the address decoder IC15. This counter value is read by the MP UNIT TAPE DECK CONTROL which computes the actual value from it.

The signals of the two spooling motor tachos are also processed by a four-edge evaluator (IC2, IC3, IC4, IC9, IC10). However, a PROGRAMMABLE COUNTER/TIMER (IC14) is used. The sense of rotation is transferred to IC16 via two D-flip-flops (IC10). The MPU thus reads the sense of rotation of the two spooling motors and the tape counter via IC16. The counter value for the spooling motors is read

a dual OR driver, retransmits the interrupt of IC14 IC8, to the MPU.

### 3.1.3.7 MOVE SENSOR PCB 1.820.770 GRP45

Scanning and transmitting of the speed and rotation direction of the tape move sensor to the TAPE DECK COUNTER/TIMER 1.820.761 (GRP20/ELM44) in the form of two square-wave TTL signals with 90° phase shift.

# description:

optical coding disc is rigidly connected to the MOVE scissors). The coding (idler roller at the tape disc rotates between a dual, forked light barrier DLQ1.

The output signals of the light barrier are converted TTL signals by IC1 (DUAL DIFFERENTIAL LINE RECEIVER with Schmitt trigger characteristic). The two trimmer potentiometers R2 and R9 are used for adjusting the duty cycle to 50%. The output signals of IC1 are buffered by IC2 (HEX SCHMITT TRIGGERS) and transmitted to the TAPE DECK (Signals TD-MOVE). COUNTER/TIMER 1.820.761 (GRP20/ELM44); (signals TD-MOVE1, TD-MOVE2).

Adjustments: refer to 3.3.3

## 3.1.3.8 MOTOR TACHO PCB 1.820.771 GRP36 (Left), GRP37 (right)

# Function:

Scanning and transmitting of the speed and rotation rection of the spooling motor to the TAPE DECK COUNTER/ TIMER 1.820.761 (GRP20/ELM44) in the form of two square— wave TTL signals with 90° phase shift.

# <u>ircuit\_description:</u>

The optical coding disc is rigidly connected to the motor shaft. It rotates between a forked light barrier DLQ1. The output signals of the light barrier are converted to TTL signals by IC2 (DUAL DIFFERENTIAL LINE RECEIVER with

Schmitt trigger characteristic). The two trimmer potentiometers R11 and R12 are used for adjusting the duty cycle to 50%. The output signals of IC2 are buffered by IC1 (HEX SCHMITT TRIGGERS) and transmitted to the TAPE DECK COUNTER/TIMER 1.820.761 (GRP20/ELM44); (left: TD-TML1/TD-TML-2; right: TD-TMR1/TD-TMR2).

Adjustments: refer to 3.3.11.

#### 3.1.3.9 SPOOLING MOTOR CONTROLLER PCB 1.820.760 GRP20/ELM45

Function:

Based on the settings of the MPU TAPE DECK CONTROL (1.820.785; GRP20/ELM46), the SPOOLING MOTOR CONTROLLER produces the analog output signals of the TAPE TENSION SENSORS (1.820.772, GRP42/43) as well as analog control signals for the SPOOLING MOTOR DRIVER (1.820.759, GRP20/ELM40) and that for each operating mode of the tape transport (STOP, PLAY, spooling, EDIT, SHUTTLE, TAPE DUMP, etc.). Basically the following applies:

The tape tensions of the supply and take-up reels are controlled when the tape speed is predetermined by the capstan motor (e.g. PLAY, REV PLAY);

■ The back tension is controlled only when the pinch roller is released (e.g. <, >, EDIT, SHUTTLE). The torque of the take-up motor is also controlled. The reference value in this case is not the tape tension but the The reference value in this case is not the tape tension but the spooling speed of the tape. value

■ The tape tension control loops are also enabled in STOP mode. The correcting variables (difference between desired and actual tape tension) of the left-hand and right-hand reel are effective on both sides so that the tape can be shuttled in either direction by manually turning one of the reels.

<u>Circuit description:</u>
The PARALLEL INTERFACE IC2 receives the tape tension ference values from the MPU TAPE DECK CONTROL (1.820.785; GRP20/ELM46) via the tape deck TTL bus and transmits these values to one of the 6 multiplying D/A converter chips IC5, 8, 11, 13, 16, 17. Port A of IC2 transmits the 8 data bits; the individual D/A converters are addressed via port

The D/A converters fulfill different functions:

- The tape tension reference values are produced by (left) and IC 13 (right); IC4 pins 5,6,7 and I (left) and IC 13 (right); IC4 pins 5,6,7 and IC12, pins 5,6,7 are responsible for converting the output currents from IC5 and IC13 respectively into voltages; comparison between the actual value and 1,2,3 and ference value is performed by IC4, pins IC12, pins 1,2,3.
- and IC17 multiply the difference between the reference value and the actual tape tension by a weigh-

ing factor that can vary depending on the tape transport mode and which takes into consideration the diameter of the reel and the corresponding pancake size. The output currents of IC11 and IC17 respectively converted to voltages by IC6, pins 1,2,3 and IC14, pins 1,2,3.

IC8 and IC7, pins 5,6,7 or IC17 and IC15, produce a control voltage for the SPOOLING MOTOR DRIVER so that the controlling error can be minimized. This requires small corrections which in turn leads to greater system dynamics of the closed loop.

■ PLAY mode:

The tape speed is determined by the capstan motor, both spooling motors control the tape tension. Active are: IC5 and IC13 for the reference value as well as IC11 and IC17 for multiplying the correcting variable (difference between desired and actual tape tension) by the weighing factor. IC8 and IC16 supply the expected control component to the control signals AN-IRL and AN-IRR. Spooling mode "fast forward": (rewind functions analogously)

The speed of the take-up motor is determined by the spooling motor control loop (set point defined by MPU TAPE DECK CONTROL via IC16); IC17 does not contribute to the control signal AN-IRR; the speed is measured by the SPOOLING MOTOR TACHO and reported to the TAPE DECK CON-1.820.785 (GRP20/ELM46) via the TAPE DECK COUNTER/ TIMER 1.820.761 (GRP20/ELM44); the MPU TAPE DECK CONTROL regulates the nominal motor current via IC16).

The supply motor controls the back tension as described under "PLAY mode".

STOP:

The tape stands still. Both spooling motors control the tape tension, but the correcting variables of the sides are interchanged via the analog switch IC9. consequence the right-hand motor takes up tape when the tape tension is decreased on the left-hand side (e.g. by turning the left-hand reel in the supply direction)

TAPE OUT (tape unthreaded):

Neither spooling motor receives control signals because the analog switch IC3 connects the AN-IRL and AN-IRR signals to ground.

3.1.3.10 SPOOLING MOTOR DRIVER PCB 1.820.759 GRP20/ELM40

Functions

- Producing a pulse-width-modulated square-wave swith a frequency of 76 kHz (PWMPL-H1 and PWMPR-H1) each spooling motor output stage (SPOOLING MOTOR 1 signal AMPLIFIER 1.820.775, GRP30/33). The duty cycle of this signal depends on the input signal AN-IRL or AN-IRR respectively which is supplied by the SPOOLING MOTOR CONTROLLER (1.820.760, GRP20/ELM44), as well as on the signal AN-ICLD or AN-ICRD which is proportional to the motor current.
- Since isolating transformers are Located in the signal path on the SPOOLING MOTOR DRIVE AMPLIFIER, the duty cycle must not be greater than approx. 98% and no less than approx. 2%.

<u>Circuit description:</u>
The input signals AN-IRL and AN-ICLD (AN-IRR and IC-ICRD respectively) are subtracted from each other and amplified (IC4. IC3).

The input signal TD-C76K (clock frequency of MP UNIT TAPE DECK CONTROL) is inverted (IC10) and applied to the input of an integrator which reshapes it into a symmetrical triangular signal.

The triangular signal is compared with the output signals

of IC3 by two high-speed comparators (IC7, IC8). result is two square-wave TTL signals with variable duty cycle.

From the inverted input signal TD-C76K, the NAND gates of IC10 and IC11 produce narrow pulses of identical frequency which are added to the output signal of the two comparators. Should the comparator outputs be continually LOW or HIGH, their output signal is replaced by the aforementioned pulses. The minimum and the maximum pulse width

are, therefore, adhered to.

Transistors Q4 and Q5 bring the control pulse level to

CMOS level; the inverters in IC6 buffer these pulses. The output signals PWMPL-H1 and PWMPR-H1 are taken to the input of the two SPOOLING MOTOR DRIVE AMPLIFIERS 1.820.775 (GRP30/33).

The reset generator TL7705 (IC1) monitors the  $\pm 15$  V voltages and enables the RESET outputs if the voltages drop too strongly or if the TD-PENBR signal (from TAPE DECK ages and enables the RESET outputs if the voltages drop too strongly or if the TD-PENBR signal (from TAPE DECK PERIPHERY CONTROLLER 1.820.762, GR20/ELM43) is set to HIGH. In this case the outputs RESET (pin 5), RESET (pin 6), and Q5 block both output signals PWMPR-H1. PWMPL-H1

# SPOOLING MOTOR DRIVE AMPLIFIER PCB 1.820.775 GRP30,GRP33

■ Controlling a DC spooling motor in either sense of rotation based on a pulse-width-modulated control signal (left: PWMPL-H1; right: PWMPR-H1) from the SPOOLING MO-TOR DRIVER 1.820.759 GRP20/ELM40). Supply voltage: approx. 30 V. Maximum supply current: approx. 6 A.

<u>Circuit description:</u> (refers to the left-hand motor) Misprint in block diagram page 5/111: T3 -> T2; T2 -> T1; T1 -> L3; C13,14 -> C16,17.

The pulse-width-modulated signal PWMPL-H1 (from the SPOOL-The pulse-width-modulated signal PWMPL-H1 (from the SPOOL-ING MOTOR DRIVER 1.820.759, GRP20/ELM40) is buffered and inverted (IC1). The inverted and noninverted signals are taken to the driver stages Q3, 4, 7, 8 or Q1, 2, 5, 6 respectively) via a edge delay circuit with different delay for the positive and the negative edges (R3, D1, C4, IC1 or R10 respectively, D2, C10, IC1). Two pulse transformers T2 and T1 provide electrical in-

TAPE TENSION SENSOR PCB 1.820.772 (Tape tension sensor assembly 1.820.150 GRP42 <left>, tape tension sensor assembly 1.820.151 GRP43 <right>

Function:

Measuring the tape tension. The angle by which the sensor lever is deflected is converted to an analog voltage (AN-TTL and AN-TTR respectively) and transmitted to the SPOOLING MOTOR CONTROLLER 1.820.760 (GRP20/ELM47) as well as to the TAPE DECK SERIAL INTERFACE 1.820.763 (GRP20/ELM47).

# CAPSTAN CONTROL UNIT 1.820.764 GRP20/ELM41

# Function:

Autonomous control of the capstan motor

# Circuit description:

is an 8-bit NMOS processor type MC 6803-1. The con-program comprises 16 K-bytes and is stored in ROM in ROM (IC17). IC15 is a CMOS RAM with a capacity of 2 K-bytes.

the 8-bit D-latch IC14. IC16 assigns the addresses AO...A7 of the multiplexed data/address bus to the address bus. The system clock E (ENABLE PULSE) is generated internally by IC16 with quartz accuracy and, after inversion (IC11), is applied to the retriggerable monoflop (IC8). (IC11), is applied to the retriggerable monoflop (100). After a second inversion, the clock is output as TC-ENB to the CAPSTAN INTERFACE and (for future) to the internal synchronizer.

correct timing the system clock E is also applied to OE (OUTPUT ENABLE) input of ROM and RAM (IC17 and IC15).

sulation between the driver stages and the output stages. A VMOS power transistor is controlled by each winding T2  $\rightarrow$  Q12 and Q9, by T1  $\rightarrow$  Q10 and Q11). These four t

T2 -> Q12 and Q9, by T1 -> Q10 and Q11). These four transistors are arranged in a bridge circuit. The aforementioned edge delay circuit prevents that a branch of the bridge is enabled before the other is disabled. The spooling motor is connected to the bridge circuit via a low-pass filter (L3, C16,17) and the current-to-voltage converter (R13-42, IC2). The output signal of the current-to-voltage converter (AN-ICLD, 312.5 mV = 1 A) is returned to the input of the spooling motor of

MOTOR DRIVER 1.820.759 GRP20/ELM40 and serves as SPOOLING a negative feedback.

Test points: Refer to 3.3.14.

<u>Circuit description:</u>
The angle sensor is The angle sensor is a noncontacting Hall effect potentiometer (part No. 1.820.153.00). The negative voltage on the "wiper" is buffered by IC1/1. IC1/2 is an inverting amplifier. Its offset can be adjusted with trimmer potentiometer R7, its gain with trimmer potentiometer R9.

Adjustments and test points: See 3.3.5.

IC18 monitors the 5 V supply and produces a defined reset pulse during power on as well after transient power failures in operation. With key S1 the CAPSTAN CONTROL UNIT can be reset manually.

With the TD-CRES signal the TAPE DECK PERIPHERY CONTROLLER can also trigger a reset on the MPU.
The jumpers JS1...JS3 define the operating mode of the

MPU IC16.

These jumper settings are fixed.

Tages at the terminal page of

The address decoder IC12 (two 2-bit binary decoders) produces the CHIP SELECT signals from the addresses A13, A14, and A15 for the ROM, the RAM, and also produces the enable signal for IC3 and IC2, and the signals TC-SL1...-SL4. IC3 is a bidirectional data bus buffer, the direction of which is determined by the read/write signal RW.

The control bus is buffered by an 8-bit bus driver (IC2).

# CAPSTAN INTERFACE 1.820.727 GRP20/ELM42

- Functions:

   BUS interface between MP UNIT TAPE DECK CONTROL and CAP-STAN MOTOR CONTROL for communication between the two MPUs.
- Digital/analog conversion for controlling the CAPSTAN MOTOR DRIVE AMPLIFIER.
- Switchover and processing of the signals from the internal or the external varispeed control.

<u>Circuit description:</u>
This assembly is connected to the data, address, and control buses of the MPU TAPE DECK CONTROL (signals with TD-...) and of the CAPSTAN CONTROL UNIT (signals with TC-...). With TD-SL7 the MP UNIT TAPE DECK CONTROL selects the PIO chip IC6. An 8-bit bus transceiver IC2 performs the required bus separation and buffering.

IC11 is selected by the CAPSTAN CONTROL UNIT via TC-SL1. The communication of the two MPUs is performed in inter-For this purpose the interrupt is always trigrupt mode. gered on the opposite PIO. The buffering is performed by IC12.

Interrupts from IC11. IC14 and those that are triggered by the CAPSTAN CONTROL UNIT (TC-EREF) itself are NORed (IC10) to a single IRQ. Scanning determines which unit has triggered the IRQ.

A NAND gate of IC5 combines the two SELECT signals TC-SL1 and TC-SL2 as a logical OR and supplies the enable signal to the 8-bit bus transceiver IC1.

bits are transferred to the DAC (IC17) via IC13 (8-bit D-register). The reference voltage for the DAC is set with IC16. The analog voltage (0...10 V) is supplied to the CAPSTAN MOTOR DRIVE AMPLIFIER (AN-CSPDC) via IC15.

TACHO SENSOR ELECTRONICS PCB 1.021.695 GRP 38

Functions:

- Producing the capstan motor tacho signals TD-TCM1 and TCM2 (90 phase-shifted square-wave signals with TTL level) and transmission of these via the CAPSTAN MOTOR DRIVE AMPLIFIER 1.820.774 (GRP39) to the CAPSTAN INTER-FACE 1.820.727 (GRP20/ELM42).
- Preparation of the output signals of the three Hall-effect sensors on the HALL SENSOR PCB 1.021.697 (built into the capstan motor, not accessible for service purposes) and transmission of these signals to the CAP-STAN MOTOR DRIVE AMPLIFIER 1.820.774 (GRP39).

Circuit description:

■ The capstan motor tacho consists of two insulating pla-The inner circumference of these has teeth rings. made of conductive plastic. The externally serrated fly-wheel (90 teeth) is rigidly coupled to the capstan motor

Each plastic ring is subdivided into 6 segments of 14 teeth each. The teeth within each segment are electrically interconnected. These six segments form two electrically interconnected groups in which each of the 3 segments is offset by 120 . These two groups of 3 segments with the serrated fly-

wheel in between can be considered as a variable capaciwheel in between can be considered as a variable capacitor whose capacitance fluctuates when the flywheel rotates (refer to Fig. 3.1.6). The frequency of the capacitance variation is 90 times greater than the rotational frequency of the capstan shaft.

The two rings are mutually offset by half a tooth which means that not only the coord but also the capacitance.

means that not only the speed but also the sense of rotation can be detected with these rings.

The tacho signals TD-TCM1/TD-TCM2 produced by the TACHO SENSOR PCB are two square—wave TTL signals with 90° phase shift. The rotation direction signals TC-TCDIR (for the synchronizer) and TC-CDIRI for the CAPSTAN CONTROL UNIT synchronizer) are produced by the D-flip-flop IC9.

The two tacho signals TD-TCM1 and TD-TCM2 and transformed by two AND/OR/INVERT gates with 2 x 2 inputs (IC4) to a signal with double the frequency (TC-TCMV, TC-TCMVI). The momentary speed is determined by the CAPSTAN CONTROL UNIT with TC-TCMVI. By contrast TCMV is intended for a synchronizer.

changeover between the internal or external varispeed control is performed with the TC-INEX signal. The two signals T-REFINT (from the internal) and T-REFEXT (from an external varispeed control) are buffered in IC14 and are logically combined with the TC-INEX signal to the TC-REF signal by the second AND/OR/INVERT gate in IC14. This output signal is processed in the CAPSTAN CONTROL UNIT and is returned as TC-REFP.

D-flip-flop IC9 divides the TC-REFP signal by two and supplies the result to the programmable divider IC14. The MPU of the CAPSTAN CONTROL UNIT can now determine the desired (setpoint) speed based on the selected nominal speed and the reference frequency from the varispeed control.

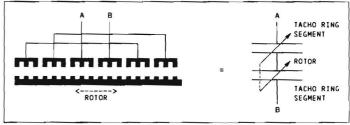


Fig. 3.1.6

■ The master oscillator (approx. 5.5 MHz) is implemented with Q1, L1 and C1. Its output signal is connected to the input of IC6 and IC7 (FM-IF amplifiers/demodu-

Together with the tuning coils L2 (of IC6) and L3 (of IC7), the variable capacitances inside the capstan motor form parallel resonant circuits, which tuned to the frequency of the master oscillator. When the capstan motor turns, the tuning of the two parallel resonant circuits changes. The output of the two FM de-modulators are AF signals of the same frequency as those of the capacitance change of the capstan motor tacho, with a phase shift of 90°.

These two signals are first amplified by ICZ/1 and IC5/1

respectively and subsequently converted to square—wave signals by the Schmitt triggers IC2/2 and IC5/2 respectively. The edge steepness is ultimately increased increased with two comparators (IC1). The open-collector outputs of the comparators (signals TD-TCM1 and TD-TCM2) are looped via the CAPSTAN MOTOR DRIVE AMPLIFIER 1.820.774 (GRP39) to the CAPSTAN INTERFACE 1.820.727 (GRP39) to the CAPSTAN INTERFACE 1.820.727 (GRP20/ELM42); the two pull-up resistors are also locat■ The output signals of the three Hall effect sensors on the HALL SENSOR PCB 1.021.697 are taken via the connector P2 to the TACHO SENSOR ELECTRONICS PCB 1.021.695 (GRP38). The comparators IC3 and IC4/1 analyze the signals. The open-collector outputs of the comparators

(signals TC-HALL1, TC-HALL2, and TC-HALL3) are connected to the inputs pin 10, 11 and 12 respectively of the CAP-STAN MOTOR DRIVE AMPLIFIER PCB 1.820.774 (GRP39); the three pull-up resistors are also located there.

Adjustments and test points: refer to 3.3.10

# 3.1.3.16 CAPSTAN MOTOR DRIVE AMPLIFIER PCB 1.820.774 GRP39

The capstan motor is a 3-phase motor with a multipole, permanent-field rotor, and a stator that is made up of 24 windings. Commutation is effected by Hall-effect sensors in the motor and by logical gating of the output signals from the Hall elements. The motor speed is determined solely by the operating voltage. The nominal operating voltage is 40 VDC.

#### Functions:

- Low-loss control of the motor speed via the operating voltage by means of switching voltage regulator (76 kHz) based on the analog input signal AN-CSPDC from the CAP-STAN INTERFACE 1.820.727 (GRPOZO/ELM42).
- Control of each of the three stator windings by means of a sine wave signal approximated by a three-stage (+, high impedance, ground) square-wave, as a function of the output signals TC-HALL1...3 from the TACHO SENSOR ELECTRONICS PCB 1.021.695 (GRP38) and the "rotation direction bit" TC-CAPDC from the CAPSTAN CONTROL UNIT PCB 1.820.764 (GRP20/ELM41).

## Circuit description:

■ The voltage regulator is implemented by IC4. It receives its clock frequency (TD-C76K, 76 kHz) from the MP UNIT TAPE DECK CONTROL 1.820.785 (GRP20/ELM46). The clock frequency is monitored in the band-pass filter around IC6/2 and shaped into a square-wave signal by Schmitt trigger IC6/1 and subsequently with IC3 (ONE SHOT) to dirac pulses of the same frequency. These pulses control the internal oscillator of IC4. If they fail, IC4 produces its own clock pulses.

The reference value in the form of the signal AN-CSPDC (O to 10 V) is produced by the CAPSTAN INTERFACE 1.820.727 (GRP2O/ELM42), buffered by IC1/1, and compared by IC1/2 with the actual value. Voltage divider R14,38/R44 determines the factor by which the operating voltage of the motor is greater than AN-CSPDC (approx. 4). The correcting variable is taken via IC2/2 to the switching regulator chip IC4.

The output of IC4 is connected to a high-speed switching stage with MOSFETs (Q1...8) which, together with L3 and C10, produces the capstan motor supply voltage (approx. 5...40 V, depending on the speed) from the +CAPMOT voltage.

■ The 6 outputs of the LOGIC CONTROL ICs, IC5, control one Darlington transistor each (Q10, Q12, Q14, Q16, Q18, Q20). Any two of these Darlington circuits can be regarded as a 3-position switch. Position 1: supply voltage; position 2: open; position 3: ground. These three switches produce the aforementioned sinusoidal signals C−PHASE−R, −S, and −T which are phase shifted by 120° each.

The chronological order of the three phases is determined by the signal TC-CAPDC; this means that also fast braking as well as reversing of the capstan motor is possible.

possible.
The supply voltage of the LOGIC CONTROL IC (IC5) is monitored by IC2/1. If it drops below approx. 4 V, the correct functioning of IC5 is no longer ensured (the switching transistors might become damaged). For this reason the output of IC2/1 blocks the pulse width modulator; its output voltage drops to 0 V.

# REMOVING THE ASSEMBLIES

- Open the flap on the amplifier bay: unfasten the stop screw (Allen screwdriver No. 3). Open flap with a sharp pull.
- Folding down the amplifier bay: unfasten two stop screws (Allen screwdriver No. 3). Lightly lift the amplifier bay and press the button in the middle of the ■ Folding bay to release the catch. We recommend to manually cushion the amplifier bay as it swings out. When closing the bay it is necessary to lightly lift the latter and to push the stop lever back so that the bay can be engaged with some momentum.

MEASURING THE WEIGHTED AND LINEAR SIGNAL-TO-NOISE RATIO AND THE RF RATIOS, THE AMPLIFIER BAY MUST BE CLOSED AND THE THREE STOP SCREWS TIGHTENED.

WARNING

DISCONNECT THE POWER PLUG BEFORE YOU REMOVE ANY HOUSING PANELS.

3.2.1 Headblock assembly

Head cover ■ Unfasten two screws [A] (Allen screwdriver No. 3).

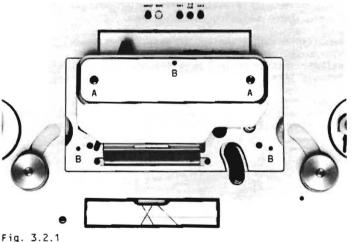
<u>Headblock (with headblock cover)</u>
IMPORTANT! TO PREVENT UNWANTED MAGNETIZATION OF THE SOUND-HEADS, THE RECORDER <u>MUST</u> BE SWITCHED OFF WHEN THE HEAD-BLOCK IS BEING REMOVED.

is not necessary to remove the head cover for removing the headblock.

Remove pinch roller (Allen screwdriver No. 3)

- Unfasten three screws (accessible through holes [B] in the soundhead or headblock cover) with the aid of the Allen screwdriver No. 3.

  Carefully lift off the headblock so that the capstan ■ Unfasten
- Carefully lift off the headb shaft will not become damaged.



#### 3.2.2 Covers

- <u>Upper tape transport cover, rear section</u>
   Unfasten seven screws (Allen screwdriver No. 2.5).
- Lift off cover.

- Upper tape transport cover, front section

  Remove pinch roller, prestabilizer roller (left), and guide roller (on the right of the headblock) by unfastening one screw each (Allen screwdriver No. 3).

  IMPORTANT: The height of the rollers might be adjusted with shims neither confuse or lose the shims, if any.

  Remove headblock (refer to 3.2.1).
- Unfasten seven screws (Allen screwdriver No. 2.5).
- Lift off cover.

- Please note during reinstallation procedure:

  Install prestabilizer roller (heavy) on the left-hand side, guide roller (light) on the right-hand side of the headblock.
- The covers of the prestabilizer roller and the guide roller must be mounted correctly: protected against orientation confusion.

Tape transport cover, bottom

Unfasten eleven screws (one below the release lever console swiveling mechanism; Allen screwdriver No. 2.5).

■ Unfasten five screws (Allen screwdriver No. 2.5).

Power supply cover

■ Unfasten ten screws (Allen screwdriver No. 2.5).

Wooden side panels

■ Unfasten four screws each (Allen screwdriver No. 4).

3.2.3

Push button rail

- front section of upper tape transport cover well as the lower tape transport cover (refer to 3.2.2).

  Disconnect 40-pin flat-cable connector on TAPE DECK
- DISPLAY DRIVER PCB.
- Unfasten two screws (Allen screwdriver No. 2.5). Carefully lift off push button rail.

Tape transport push button assembly

Remove push button rail (3.2.3)

- Disconnect flat-cable connector on the left-hand edge of the TAPE DECK DISPLAY DRIVER PCB. Open cable clamp in
- which the flat cables are secured.

  Unfasten two screws [C] (Allen screwdriver No. 3).



Fig. 3.2.2

### 3.2.5 Service display

- Remove push button rail (3.2.3).
- flat-cable connector on the top edge of the TAPE DECK DISPLAY DRIVER PCB.
- Unfasten two screws [D] (Allen screwdriver No. 2.5).

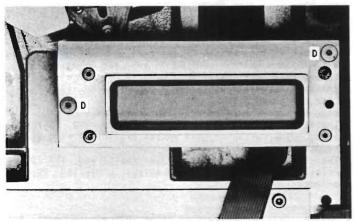


Fig. 3.2.3

### 3.2.6 Tape quide assembly

- Remove front section of upper tape transport cover (3.2.2).
- Slide two slot covers [E] over the shaft stubs of the prestabilizer roller and guide roller and slide them far as possible in the direction of the brake solenoids.
- Unfasten three screws [F] (Allen screwdriver No. 3).
- Remove assembly. Do not turn upside down, otherwise the three screws will drop out.
- Please note during reinstallation procedure:

  Manually turn the two cam discs (on the shafts of the synchronous motors) to their clockwise limit positions.
- Lightly twist clockwise the swivel arm of the prestabilizer roller and the one of the ceramic tape guide as well as counterclockwise the swivel arm of the guide roller and canefully incent the topo guide roller. roller, and carefully insert the tape guide assembly.
- Lift the two slot covers over the shaft stubs and ensure that the shaft end [G] of each swivel arm fits into small hole [H] of the shields.

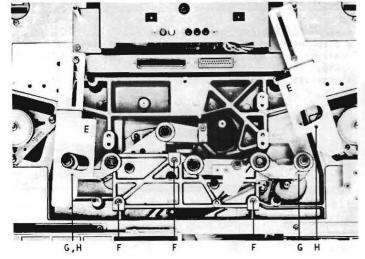


Fig. 3.2.4

#### 3.2.7 Tape tension sensors

- Remove headblock (3.2.1), front section of upper tape transport cover, and lower tape transport cover (3.2.3).
   Detach flat-cable connector on the underside of the
- tape tension sensor.
- Unfasten three special screws for each tape tension sensor (ball head Allen screwdriver No. 3), accessible through the cutout at the sleeve edge of the guide rol-

### 3.2.8 Tape end sensor (light barrier) with guide roller

- Remove headblock (3.2.1) and front section of upper tape transport cover (3.2.3).
- Detach flat-cable connector on the sensor PCB.
- Unfasten three special screws (Allen screwdriver No. 3).

## 3.2.9 Tape move sensor

- Remove headblock (3.2.1) and front section of upper tape transport cover as well as lower tape transport cover (3.2.2).
- Detach flat cable connector on the underside
- Unfasten three special screws (Allen screwdriver No. 3).

#### 3.2.10 Spindle (incl. brake roller)

- Remove rear section of upper tape transport cover.
- Disengage adapter by pressing down the ring at the edge of the spindle and remove it
- in the center of the spindle (Allen Unfasten screw in screwdriver No. 4).
- By pressing against the armature of the brake solenoid (see arrow), release the brake band from the brake lining to such an extent that the spindle can be lifted off without twisting the brake band.

IMPORTANT! THE HEIGHT OF THE BRAKE DRUM HAS BEEN ADJUSTED WITH SHIMS. DO NOT LOSE OR CONFUSE THE SHIMS.
NEITHER THE INSIDE OF THE BRAKE BAND NOR THE BRAKE LINING (REDDISH FABRIC) SHOULD BE TOUCHED WITH YOUR FINGERS.

When reinstalling the spindle, also ensure release the band by brake band does not become twisted: pressing against the armature of the brake solenoid.

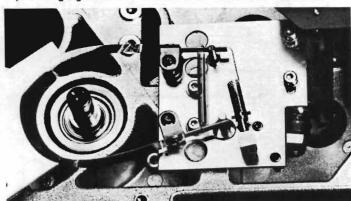


Fig. 3.2.5

# 3.2.11

- Remove spindle (3.2.10).
- Detach the supply cable to the brake solenoid.
- Unfasten two screws (Allen screwdriver No. 3).
- During removal, guide the supply cable of the brake solenoid through the tape transport chassis.
- Please note during reinstallation procedure:
- Insert supply cable of the brake solenoid. Adjust brake chassis (refer to 3.3.4).

### 3.2.12 Spooling motors

- Remove spindle (3.2.10).
- Remove stop plate for brake band (2 screws [J], (Allen screwdriver No. 3).
- Remove lower tape transport cover (3.2.2).
   Detach motor supply cables on SPOOLING MOTOR DRIVE AMPLIFIER PCB and flat cable on MOTOR TACHO PCB (behind
- Unfasten three screws [K] (Allen screwdriver No. 4). To prevent the motor from falling out, it must be supported from the bottom while the screws are being unfasten ed.
- that the polarity is correct when you reinstall or. Red riangle "+" (or "B" on the left-hand spooling Ensure the motor. Red  $\triangleq$  "+" (or "B" on the left-han motor, "A" on the right-hand spooling motor).

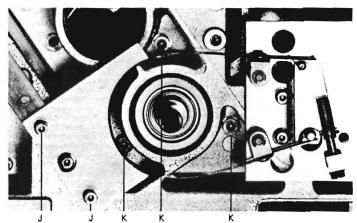


Fig. 3.2.6

# 3.2.13

The capstan motor 1.021.601.00 operates under the of the CAPSTAN CONTROL UNIT 1.820.764.007.20 . The assembly 1.820.764.217.22 is used in conjunction with the motor 1.021.601.81.

- Remove front section of upper tape transport cover and lower tape transport cover (3.2.2).
- Detach multipin connector (MOLEX) on CAPSTAN MOTOR DRIVE AMPLIFIER.
- Unfasten three special screws (Allen screwdriver No. 3). To prevent the motor from dropping out, it must be supported from the bottom while the screws are being unfastened.

### 3.2.14 Power supply

- Remove power supply cover, rear section of opper tape transport cover, and lower tape transport cover (3.2.2).
   Unscrew power switch (Allen screwdriver No. 3).
- Detach one cable harness each (in a gray plastic tube) from the STABILIZER/LIMITER PCB, from the SPOOLING MOTOR SUPPLY PCB and from the power switch. Unfasten cable clamp of the cable harness to the power switch (Allen screwdriver No. 3).
- Open and empty cable duct.
- lacktriangle Detach connectors of the two stranded ground wires (blk).
- Unfasten eleven screws (Allen screwdriver No. 2.5) at the lower edge of the connector panels. Remove remote-control connector panel by unfastening three additional
- Unplug stranded ground wire blk (connector on PARALLEL REMOTE INTERFACE PCB).
- Detach flat-cable connection on PARALLEL REMOTE INTER-FACE, pull circuit board out of the guide rails, detach second flat-cable connection.
- three screws each on the left-hand and righthand side panel of the amplifier bay. Hold the power supply unit while you unfasten the screws. Carefully lift out the power supply unit.

#### Reinstallation procedure

- All still existing connector panels and filler panels are to be removed completely before commencing with the panels reinstallation (6 additional screws, Allen screwdriver No. 2.5).
- The reinstallation procedure can subsequently be started
- by performing the foregoing steps in the reverse order. Reconnecting the power switch: 2 x blu in the middle, 2 x brn on the narrow side of the power switch.

# Monitor unit (built into tape deck)

## Monitor speaker

- Remove rear section of upper tape to lower tape transport cover (3.2.2). section of upper tape transport cover and
- Disconnect speaker supply cable on MONITOR AMPLIFIER (CIS connector).
- Unfasten three screws (Allen screwdriver No. 3).

## Monitor amplifier unit

Unfasten two hexagon stud bolts (width across flats 7 mm) and two screws (Allen screwdriver No. 3) as well as a flat-cable and three CIS connectors on the MONITOR AMPLIFIER.

SPOOLING MOTOR DRIVE AMPLIFIER (2 x), SPOOLING MOTOR SUPPLY AND STABILIZER/LIMITER PCBs

- $\blacksquare$  Remove rear cover (3.2.2), swing down amplifier bay, and set recorder into the service position.
- Connections:
  - SPOOLING MOTOR DRIVE AMPLIFIER: Two motor supply conductors (AMP terminals; red = "+", blk = "-"), one flat-cable connector and one MOLEX connector.
     SPOOLING MOTOR SUPPLY: Detach one flat-cable connector
  - and three MOLEX connectors.

    STABILIZER/LIMITER: Detach two MOLEX connectors
- the four assemblies is secured on the back of the recorder by means of a screw (Allen screwdriver No. 3). The assembly can be removed toward the rear
- after this screw has been unfastened.
   Upon reinstallation, the two pins (on each assembly)
  must fit into the corresponding holes of the recorder chassis.

# CHECKS, ADJUSTMENTS

Required aids:

Digital Multimeter Oscilloscope Frequency counter Spring dynamometer 0 - 5 N (0 to 500 g)Part No. 10.249.001.01 ■ Spring dynamometer 0 - 20 N (0 to 2 kg) Part No. 10.249.001.03 ■ Gauge for adjusting the tape tension sensors Part No. 10.010.001.30 Device for adjusting the tape tension springs incl. 2 weights Part No. 10.010.001.31 ■ rentelometer 1/4" - 1" Part No. 10.300.001.01 ■ Audio head alignment gauge A80/A820 1/4" Part No. 10.010.001.02 Reference block A80/A800/A820 Part No. 10.010.001.01 ■ Tape guidance gauge ■ Extender board Part No. 10.xxx.xxx.xx Part No. 1.820.799.00



Grease pen

- Checking the supply voltages.

  Swing down amplifier bay.

  On FUSE/SUPPLY FAILURE DETECTOR PCB 1.820.737 measure the voltage to ground (TP3) on the following test points (from left to right):

  TP11: +5.6 V ± 0.1 V (adjustable with R21 on SWITCHING STABILIZER PCB 1.820.790)

  - TP10: +24 V ± 1 V TP9: +15 V ± 0.1 V
  - (adjustable with R6 on SWITCHING STABILIZER PCB 1.820.790)
  - TP8 : -15 V ± 0.1 V TP7: +26 V ± 1 V
  - $-26 V \pm 1 V$ TP6:
  - STABIN+ unregulated voltages, variable
  - TP2 : STABINbetween 30 V and 63 V, depending
  - on Load and equipment of recorder TP1: CAPMOT

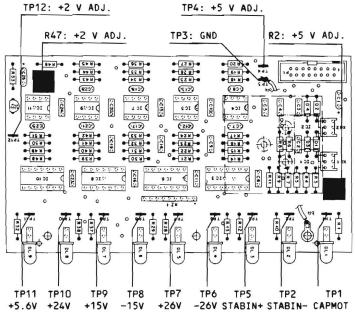


Fig. 3.3.1

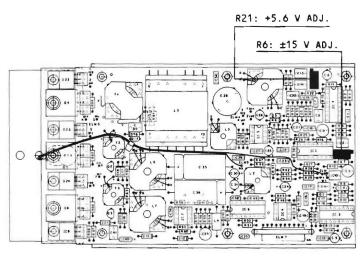
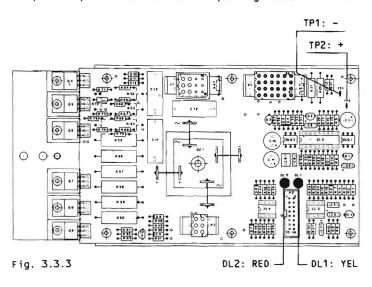


Fig. 3.3.2

Part No. 10.401.001.01

- Adjusting the reference voltages:

  Adjust the reference voltages on the FUSE/SUPPLY FAILURE DETECTOR PCB 1.820.737 (as a rule, only required after repairs have been made on the circuit board):  $\cdot$  TP4: +5.0 V  $\pm$  100 mV (adjustable with R2)
- TP12: +2.0 V ± 20 mV (adjustable with R47).
- Checking the spooling motor supply voltage:
- In normal operation of the recorder, approx. + 30 V are available between the test points TP2 ("+") and TP1 ("-") on the SPOOLING MOTOR SUPPLY PCB 1.820.777.
   The yellow LED (DL1) is dark after power on. After approx. 4 seconds it is illuminated brightly, afterwards
- its brightness slowly decreases to a dim glow (in normal operation).
- The red LED (DL2) is only on if the spooling motors are acting as generators and deliver energy to be dissipated by the "power Z diode" on the spooling motor control.



# OPTO SENSOR (light barrier) 1.820.793 GRP44

Checking and adjusting the switching threshold:

Remove front half of upper tape transport co reinstall the headblock and the guide rollers. cover. Then

Connect voltmeter (range 15 VDC) to TP2 and ground (TP1)

Switch recorder on, no tape mounted. If the measurement does not indicate 0 V  $\pm$  0.1 V, adjust with R27.

Mount tape and spool forward past the leader so that magnetic tape is located in the light barrier.

Switch recorder to STOP.

If the measurement does not indicate 12 V at least, adjust with R26.

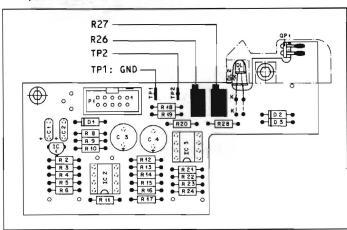


Fig. 3.3.4

# MOVE SENSOR (tape move sensor) 1.820.770 GRP45

Checking and adjusting the duty cycle

Switch recorder off.

Remove TAPE DECK COUNTER/TIMER 1.820.761 and reinsert it via the extender board (1.820.799.00).

Switch recorder on.

■ Connect oscilloscope to terminal 7 or 8 (ground to terminal 21) of the extender board.

■ Mount tape and select highest tape speed.

■ Check symmetry of curve shape. The duty cycle of the two signals must be 50% ± 10%. If there are any deviations, adjust to a symmetrical square—wave signal with R3 (R3) is located next to the connector) on the MOVE SENSOR PCB (signal on terminal 7 of the extender board) or R9 spectively (signal on terminal 8).

Phase shift of the two MOVE signals

■ The phase shift of the two
(90° ± 10°) cannot be adjusted. signals square-wave

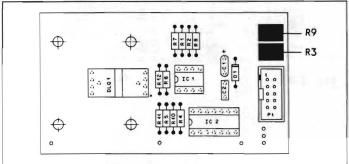


Fig. 3.3.5

### 3.3.4 Mechanical brakes GRP40 (left), GRP41 (right)

<u>Checking the brake assembly:</u> (recorder switched off)
The correct functioning of the brakes can be checked by briefly turning the spindle forward and backward. Whenever the direction changes, one of the two brake levers audibly contacts the lifting pin or the stop pin.

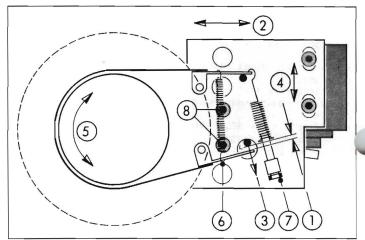


Fig. 3.3.6

Adjusting the brake assembly:

Switch recorder off.

Remove rear section of upper tape transport cover.

The play [1] between the brake lever and its pin must be 1 to 1.5 mm. Adjustment procedure:
Remove reel adapters. lifting

Remove spindle without brake roller, (3 screws, Allen screwdriver No. 3).

Unfasten two mounting screws [8] of the brake assembly

• Unfasten two mounting screws [8] of the brake assembly (Allen screwdriver No. 3), shift brake assembly side— ways in parallel until the required play is attained. Retighten the mounting screws.
The travel [3] of the lifting pin should be 4 to 5 mm.
Check by pressing from the front against the armature of the brake solenoid. The travel can be adjusted after the two mounting screws of the brake assembly [4] (Allen screwdriver No. 3) have been lightly loosened, the travel can then be adjusted by shifting the brake sole-noid. Retighten the fixing screws. noid. Retighten the fixing screws.

Reinstall spindle.

Adjusting the retarding torque:

Retarding torque in take-up direction (weak braking):

Mount empty reel with 2 to 3 m of tape in direction opposite the normal operating position.

Hook spring dynamometer 0 - 5 N (0 to 500 p) into a loop at the start of the tape; unwind tape slowly and evenly. The retarding torque can be adjusted to the value specified in the following table by rehooking the spring [6].
■ Retarding torque in supply direction (strong braking):

Mount empty reel with 2 to 3 m of tape in normal

rating position.

Hook spring dynamometer 0 - 5 N (0 to 500 p) loop at the start of the tape; unwind tape slowly and evenly. The retarding torque can be adjusted by means of screw (7) to the value specified in the table screw below.

The retarding torque should be uniform throughout the entire length of the tape, otherwise the brake roller the brake band need to be replaced. Before installing an installing the brake band be shure to clean its inner surface thoroughly with spirit.

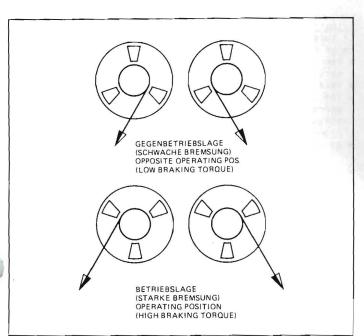


Fig. 3.3.7

| i    | Left-  | -hand reel                                     | Right-hand reel                                |                            |  |  |  |  |
|------|--|--|--|----------------------------|--|--|--|--|
|      | Take-up<br>direction<br>(opposite<br>op. pos.) | Supply<br>direction<br>(operating<br>position) | Take-up<br>direction<br>(opposite<br>op. pos.) | THE CO. SECTION S. LEWIS . |  |  |  |  |
| 1/4" | < 0,9 N  | 2 N ± 0,15 N                                   | < 0,9 N  | 2 N ± 0,15 N               |  |  |  |  |
|      | (< 90 p)                                       | (200 p ± 15 p)                                 | (< 90 p)                                       | (200 p ± 15 p)             |  |  |  |  |
| 1/2" | < 0,9 N  | 2 N ± 0,15 N                                   | < 0,9 N  | 2 N ± 0,15 N               |  |  |  |  |
|      | (< 90 p)                                       | (200 p ± 15 p)                                 | (< 90 p)                                       | (200 p ± 15 p)             |  |  |  |  |

TAPE TENSION SENSOR 1.820.772 GRP42 (left), GRP43 (right)

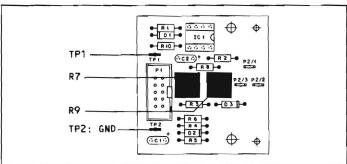


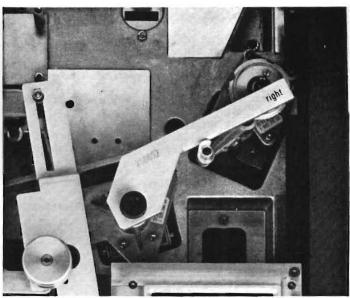
Fig. 3.3.8

## Checking the tape tension sensor:

- Remove lower tape transport cover.

  Remove guide roller and prestabilizer roller (left) or tacho roller (right), respectively.

  Connect digital voltmeter to the two test points TP1
- +") and TP2 (ground).
- Switch recorder on.
- In the neutral position of the tape tension sensor (without tape) the measured voltage should be 0.000 V (+ 15 mV/- 0 mV) (Offset).
- Insert gauge for adjusting the tape tension sensors according to Fig. 3.3.9 (part No. 10.010.001.30) into the tape tension sensor; the voltage should be 2.700 V ± 10 mV (Gain).



Checking the tape tension spring:
Before this check the offset and gain adjustment must (see above) and adjusted, if necessary (see be-Low).

- Install guide and prestabilizer/tacho rollers.
- Insert adjusting device (part No. 10.010.001.31) on the tape transport according to Fig. 3.3.10 (it is not necessary to remove the tape transport covers for this check)
- Connect digital voltmeter to the two test points (as above).
- Hook on small weight (20 g). The reading of the digital voltmeter should be 50 mV ±20 mV.
   Hook on the large weight (220 g). The reading of the digital voltmeter should be 3.200 V ±50 mV.
   If these values are not attained, the tape tension spring has to be adjusted (see below).

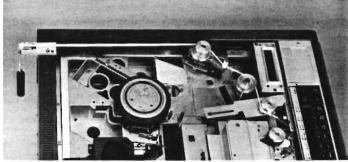


Fig. 3.3.10

- Adjusting the tape tension sensor:

  Remove guide roller and prestabilizer roller (left) or tacho roller (right), respectively.

  Neutral position: adjust offset with R7 on TAPE TENSION SENSOR PCB (closer to the connector) to a voltage of 0.000 V (+15 mV/-0 mV).

  Insert gauge for adjusting the tape tension sensors according to Fig. 3.3.9, adjust gain with R9 to a voltage of 2.700 V ±10 mV.
- Secure both potentiometer settings with locking paint.

Adjusting the tape tension spring [A]:
The offset and the gain must be checked and aligned, if necessary, before this adjustment is made (see above).

Remove front section of upper tape transport cover.

- Install guide and prestabilizer/tacho rollers.
   Install adjusting device on the tape transport (refer to Fig. 3.3.10).

- Connect digital voltmeter to the two test points (as above).
- Loosen locknut [B] of threaded pin [C].
- \* Hook on small weight (20 g).
   \* Adjust the voltage to 50 mV ±20 mV by turning the threaded pin [C] (voltage increases when turning out the threaded pin).
- \* Tighten the locknut [B], t between the indicated limits. the voltage must remain

  - \* Hook on the large weight (220 g).

    \* Adjust the voltage to 3.200 V ±50 mV by turning the adjusting pin [D] (voltage rises when the spring is elongated).

adjustments identified with "\*" influence each other and must be repeated several times in the same sequence, if necessary.

- Secure threaded pin [C] (locknut [B]) and adjusting pin [D] with locking paint.
- Reinstall tape transport covers.

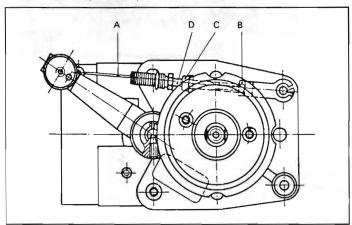


Fig. 3.3.11

3.3.6 Pinch unit

# Checking the distance between capstan shaft and pinch

- roller: Mount tape, switch recorder on, select STOP mode
- The distance between capstan shaft and pinch roller must measure between 0.5 and 1.0 mm. If this value is not attained, the distance is to be ad-
- iusted.

# Adjusting the distance between capstan shaft and pinch

- Remove lower tape transport cover, tilt recorder to
- service position.

  Loosen locknut (opening between flats 7 mm) on the tie rod of the pinch unit and turn tie rod until the required distance between capstan shaft and pinch roller is attained.
- Retighten locknut and secure with locking paint.
- The pinch roller spring must be adjusted afterwards.

## Checking the pinching force:

- Remove front section of upper tape transport cover.
   Reinstall headblock and pinch roller (without cover),
- unscrew fixing screw from the pinch roller cover and turn it into the tapped hole of the pinch roller shaft by 3 to 4 turns.
- Mount tape, switch recorder on, select PLAY mode.
   Hook spring dynamometer 0 20 N to the screw, and pull in the direction of the connecting line between the centers of the capstan shaft and the pinch roller. While pulling, lightly brake the pinch roller with your fieres. finger
- lacksquare The spring dynamometer should indicate 9 N  $\pm$  1 N (0.9 kp ± 0.1 kp) at the point where the pinch roller just lifts off the tape (and consequently stops).

### Adjusting the pinching force:

- this value is not attained, the pinch roller spring has to be readjusted.
- Remove lower to service position. tape transport cover, tilt recorder to
- Switch recorder to PLAY.
- Switch recorder to PLAY.
   The adjusting nut (prevailing torque type number of the ninch unit is nut, opening flats 7 mm) of the pinch unit is accessible a hole in the cast chassis. Adjust until the across flats through a ho requested value is attained.
- Reinstall pinch roller cover after the adjustment.

# Lifting pin

The lifting pin (between reproduce head and capstan shaft) should touch the tape only lightly in PLAY mode.

- Checking and adjustment:
  Remove soundhead cover (refer to 3.2.1).
- Switch recorder to PLAY mode and press on the lifting pin from the front. The pin should be lifted off the tape by a few tenths of a millimeter.
- Should this not be the case, loosen the locknut (opening across flats 5.5 mm) and adjusting screw (opening across flats 5.5 mm) to such a point where the pin just touches the tape in play mode.
- Retighten locknut.
- Reinstall soundhead cover.

#### 3.3.8 Tape tension

<u>Check measurements:</u>
The tape tensions are measured with a Tentelometer (part No. 10.300.001.01) which is calibrated for a tape tension of 1.0 N (100 p) with 1/4" tape of the same brand used for the tape tension adjustment. The Tentelometer is to be arranged as close to the reels as possible. The tape arranged as close to the reels as possible. The tape should run perpendicularly over the center of the Tentelo-The rear section of the upper tape transport cover may possibly have to be removed (depending on the type of Tentelometer used) in order to gain unobstructed access to the tape.

- Switch tape recorder on, select tape speed 15 ips as well as corresponding tape type (the tape tension va are also changed over when a different tape type is lected).
- Mount tape and spool forward until the tape pancakes are the same size on both reels.
- PLAY and REVERSE tape tension:
- The values specified in the table below must be attained. When the pinch roller is manually lifted slightly off the tape, the reels should stand still after one full revolution at the most. The service diagrams chould indicate the following respect. splay should indicate the following message:

## ERR: PINCH ROLLER SLIPPING

(After having released the pinch roller, this message disappears)

- - Spooling tension: To check the tape tension in spooling mode, the winding speed is to be set to 0.5 m/s:

  - Open the programming lock (Allen screwdriver No. 2.5, approx. one turn in the counterclockwise direction).
     Starting with the display status "L RANGE ./. dBm", press \(\forall /NEXT\) twice, \(\rightarrow /CURSOR\) once, and \(\forall /NEXT\) four times in order to page forward to the block "SET MAX LITTLE SEED." WIND SPEED".

- Set the parameter to 0.5 m/s with the SET/CUE wheel.
- Press STORE.Press †/LAST six times.
- Measure on the left-hand reel, function >. The values specified in the following table should be attained.
   Restore the original winding speed (same procedure as
- above).
- Close programming lock (turn to the clockwise stop).
- STOP and EDIT tape tension:

  - Switch tape recorder to STOP.
     Measure on left-hand reel.
     manually turn the right-han During the measurement, turn the right-hand reel counterclockwise slowly and evenly.

|      |           | 1/4" |            |  |   |       |  |  | 1/2" |  |              |              |       |  |  |  |  |
|------|-----------|------|------------|--|---|-------|--|--|------|--|--------------|--------------|-------|--|--|--|--|
|      | ı         | _e   | ft         |  | - | Right |  |  | Left |  |              |              | Right |  |  |  |  |
| PLAY |           |      |            |  |   |       |  |  |      |  |              | ±0,1<br>± 10 |       |  |  |  |  |
|      |           |      |            |  |   |       |  |  |      |  |              | ±0,1<br>± 10 |       |  |  |  |  |
| >    | 0,8<br>80 |      | ±0,<br>± 1 |  | 1 | _     |  |  |      |  |              | ±0,1<br>± 10 |       |  |  |  |  |
| STOP |           |      |            |  |   |       |  |  |      |  | ±0,1<br>± 10 |              |       |  |  |  |  |

<u>Tape tension adjustments:</u>
These values must be corrected if they are not attained.

- These values must be corrected if they are not attained.

   Open the programming lock (Allen screwdriver No. 2.5, approx. one turn in the counterclockwise direction).

   Starting with the display status "L RANGE ./. dBm", press \(\frac{1}{2}\)/NEXT twice, \(\frac{1}{2}\)/CURSOR once, and \(\frac{1}{2}\)/NEXT seven times for the PLAY tape tension, eight times for the spooling tape tensions, nine times for the STOP/EDIT tape tension, and ten times for the REVERSE PLAY tape tension, in order to page to the desired programming blocks. Changeover right/left with \(\frac{1}{2}\)/CURSOR or \(\frac{1}{2}\)/CURSOR (indication in the LC display). The selected tape type is also displayed (upper right section of the LC display), the changeover is performed by pressing tape type is also displayed (upper right section of the LC display), the changeover is performed by pressing STOP and TAPE A/TAPE B at the same time (changeover from 1/4" to 1/2" tension takes place automatically when the headblock is exchanged, i.e. a 1/4" headblock must be installed for adjusting the 1/4" tape tensions).
- Set the parameter the SET/CUE wheel. the parameter to the desired value with the aid of
- Press STORE.
- Press ↑/LAST as often as required so that the service display indicates "L RANGE ./. dBm".
   Close programming lock (turn to the clockwise stop).

#### 3.3.9 Exchanging and adjusting the soundheads

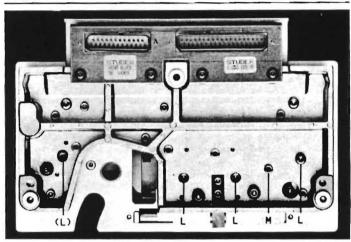


Fig. 3.3.12

IMPORTANT: To prevent unwanted magnetization of the soundheads, the recorder must be swi block is removed or reinstalled. the recorder must be switched off before the head-

Exchanging the soundheads:

- Remove pinch roller and headblock (1 + 3 screws, Allen screwdriver No. 3).
- Remove soundhead cover (2 screws, Allen screwdriver No. 3).
- Unscrew connector carrier (4 screws, Allen screwdriver No. 2 5)
- Unsolder connecting cable of the corresponding head.

Pin\_assignment\_GRP60\_ELM01 (connector in headblock):

| 1         | Erase head/ Record Reprod |       |     |       |      | od.         | Cod          | de   | Preamp. |     |     |     |
|-----------|---------------------------|-------|-----|-------|------|-------------|--------------|------|---------|-----|-----|-----|
|           |                           | repro |     | 95000 | ead  | hea         | 1000         | head |         |     |     | Sup |
|           | сн1                       | CH2   | TC  | сн1   | CH2  | CH1         | CH2          | Era  | Rec     | CH1 | CH2 | ply |
| A820-1    | #16                       |       |     | 5     |      | <b>*12</b>  |              |      |         | 1   |     | 9   |
| Mono      | grn                       |       |     | brn   |      | brn         | 1            |      | 1       | blk |     | red |
|           | #17                       |       |     | 6     |      | *11         |              | 1    |         | 2   |     | 28  |
|           | org                       |       |     | blk   |      | blk         |              |      |         | blu |     | blu |
| A820-0.75 | #16                       | -     |     | 5     | 24   | <b>*1</b> 2 | *14          |      |         | 1   | 20  | 9   |
| A820-2 F  | grn                       |       |     | brn   | 1000 | brn         | 750 10 10 10 |      |         | blk |     | red |
| Stereo    | #17                       |       |     | 6     | 25   |             |              | 1    |         | 2   | 21  | 28  |
|           | org                       |       |     | blk   | blk  | blk         | blk          |      |         | blu | blu | blu |
| A820-0.75 | #16                       | #34   |     | 5     | 24   | *12         | *14          |      |         | 1   | 20  | 9   |
| VU        | grn                       | grn   | 1   | brn   |      | brn         | brn          | ļ    |         | blk | blk | red |
| Stereo    | #17                       | #35   |     | 6     |      | *11         | *13          |      |         | 2   | 21  | 28  |
|           | org                       | org   |     | blk   | blk  | blk         | blk          |      |         | blu | blu | blu |
| A820-2    | #16                       | #34   |     | 5     | 24   | *12         | *14          |      |         | 1   | 20  | 9   |
| 2 Channel | grn                       |       |     | brn   |      | brn         |              | 1    |         | blk |     | red |
| 1/4"      | #17                       | #35   |     | 6     | 25   | 150 99      | *13          | ì    |         | 2   | 21  | 28  |
|           | org                       | org   |     | blk   | blk  | blk         | blk          |      |         | blu | blu | blu |
| A820-2 TC | #16                       | #34   | #13 | 5     | 24   | *12         | *14          | 15   | 14      | 1   | 20  | 9   |
| 2CH + TC  | grn                       |       | org | brn   |      |             |              | grn  | org     | blk | blk | red |
|           | #17                       | #35   | #31 | 6     | 25   |             | *13          | 33   | 32      | 2   | 21  | 28  |
|           | org                       | org   | grn | blk   | blk  | blk         | blk          | org  | grn     | blu | blu | blu |
| A820-2    | #18                       | #36   |     | 5     | 24   | *12         | *14          |      |         | 1   | 20  | ۶   |
| 2 Channel | grn                       | grn   |     | brn   |      | brn         | brn          |      |         | blk | blk | red |
| 1/2"      | #17                       | #35   |     | 6     | 25   | 10 (10)     | *13          |      |         | 2   | 21  | 28  |
|           | org                       | org   |     | blk   | blk  | blk         | blk          |      |         | blu | blu | blu |

- Connected to preamplifier in headblock.
- # Connected to ERASE HEAD CONNECTION PCB in headblock.

■ The soundhead can be removed after the screw [L], accessible from the bottom, has been unfastened (Allen

IMPORTANT: The black swivel plate must not be shifted when exchanging a soundhead. The distance between the sound-head support and the face of the head has been milled to the same dimensions for all soundheads which means that no adjustments are necessary.

■ After the soundheads have been exchanged, the perpendicularity of the head can be checked by means of the soundhead alignment gauge A80/A820 1/4" (part No. 10.010.001.02) on the reference block A80/A800/A820 (part No. 10.010.001.01). The headshield flap must be removed for this check (2 screws, Allen screwdriver No. 2). The headblock and the gauges should be set on a levelling plate (or by way of expedient on a flat glass plate).

#### Aligning the face of the record and the reproduce PREREQUISITE: TAPE TENSION ADJUSTED ACCORDING TO 3.3.7

- the face of the record and the reproduce head with
- a grease pen (part No. 10.401.001.01).

  Mount tape, select highest tape speed, and allow the recorder to run in PLAY mode for approximately two minutes.
- recorder and lift the tape carefully off the head. Stop the nead face is aligned correctly if the colour has been polished off symmetrically on both sides of the headgap (if necessary check with magnifying glasses). Should this not be the case, the head must be brought into the correct position by turning it; recheck head gap position afterwards, as described above.

Aligning the head face of the erase head (For time code versions also refer to 4.7.6 and 4.7.7) Method A:

- Remove soundhead cover (2 screws, Allen screwdriver
- Mount tape and start recorder in PLAY mode.
- Look at the erase head vertically from the top and align the head in such a way that the spacings from the left-hand and the right-hand edge of the head to the tape are identical.

- Mark the black (ferrite) surfaces of the erase head with a grease pen (part No. 10.401.001.01). The light (ceramic) parts of the head are difficult to clean.
- Mount tape, select highest speed, and allow the recorder to run in PLAY mode for approximately 2 minutes.

  Stop recorder and lift the tape carefully off the head. The head face is aligned correctly if the colour has been polished off symmetrically on both sides of the headgap (if necessary check with magnifying glasses). Should this not be the case, the head must be brought into the correct position by turning it; recheck head gap position afterwards, as described above.

# Azimuth alignment of the record and the reproduce head Refer to 4.3.3 or 4.4.3 and 4.4.5 respectively.

#### Scrape flutter roller

The scrape flutter roller can be removed after the screw [M] accessible from the bottom (Allen screwdriver No. 2.5) has been unfastened. The height adjustment of the scrape flutter roller does not need to be checked after removal of the roller because the height has been aligned exactly by the factory.

Adjusting the tape quidance elements
Check the left-hand ceramic tape guide (between the and the record head) with the aid of the tape guidance alignment gauge (part No. 10.xxx.xxx.xx).

#### 3.3.10 Capstan motor GRP38

The capstan motor 1.021.601.00 operates under the control of the CAPSTAN CONTROL UNIT 1.820.764.00/.20 . The assem-The assembly 1.820.764.21/.22 is used in conjunction with the motor 1.021.601.81.

### Capstan motor tacho

The capacitive scanners as well as the three Hall effect sensors can only be adjusted in the factory.

#### TACHO SENSOR ELECTRONICS PCB 1.021.695

- Remove capstan motor (refer to 3.2.13), but leave it connected. Remove the TACHO SENSOR ELECTRONICS PCB 1.021.695.81 from the capstan motor (2 screws, Allen screwdriver No. 2.5)

- Switch recorder on, without tape. Tape speed 15 ips. Start capstan motor by pressing PLAY. Connect frequency counter to TP2 (ground lead to TP1).
- Set oscillator frequency with L1 to 5.5 MHz ±500 kHz. Connect oscilloscope (possbily AF voltmeter) to
- Connect oscilloscope (ground lead to TP1).
- Adjust for maximum amplitude with L3.
- Connect oscilloscope (possibly AF voltmeter) to TP3 (ground lead to TP1).
- Adjust for maximum amplitude with L2.
- oscilloscope to signal TD-TCM2 (IC1/pin 2) and Connect adjust with R41 to duty cycle of 50%.
  The following adjustments can or have to be executed

motor installed (trimmer potentiometer R41 is accessible from below if the bottom cover is removed):

If a wow-and-flutter meter is available, reinstall the

- capstan motor. Minimize the linear wow and flutter with R41.
- By way of expedient this adjustment can also be made in one of the two following ways:
- with oscilloscope (with removed capstan motor only):
  Connect oscilloscope to TP3 (ground lead to TP1).
  Adjust signal with R41 to minimum jitter.
  By ear (also possible with reinserted capstan motor):
  Press blade of a large screwdriver (approx. No. 6) against the capstan motor housing. With one ear listen to the motor noise on the screwdriver handle and minimum process. mize loudness with R41.

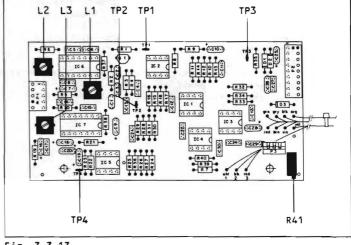


Fig. 3.3.13

SPOOLING MOTOR TACHO 1.820.771 GRP36 (Left), GRP37 (right)

Checking and adjusting the duty cycle

Plug in the TAPE DECK COUNTER/TIMER PCB 1.820.761 via the extender board (Part No. 1.820.799.00). Connect oscilloscope to terminal 1 or 2 (left-hand motor), terminal 3 or 4 (right-hand motor), and ground lead to terminal 21 of the extender board.

■ Mount tape, switch recorder to spooling mode.

■ Check symmetry of wave form. The duty cycle of the signals (two for each motor) should be 50% ± 10%. Corrections symmetric square-wave signal can be made with the trimmer potentiometers on the corresponding SPOOLING MOTOR TACHO PCB (see table).

|                       |     | -hand<br>tacho | Right-hand<br>motor tacho |     |  |  |
|-----------------------|-----|----------------|---------------------------|-----|--|--|
| Trimmer potentiometer | R11 | R12            | R11                       | R12 |  |  |
| Pin on extender board | 1   | 2              | 3                         | 4   |  |  |

Phase shift of the two signals The phase shift (90°) of the

the two square-wave signals is factory aligned and cannot be adjusted.

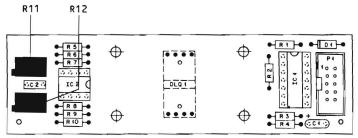


Fig. 3.3.14

3.3.12 CUE SENSOR (Edit assembly) 1.820.765 GRP49

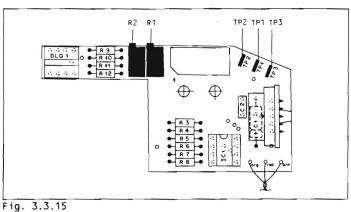
# SET/CUE wheel, check and adjustment of the duty cycle ■ Remove lower tape transport cover. ■ Connect oscilloscope to TP1 or TP2 respectively, ground

lead to TP3 of the CUE SENSOR PCB.

Switch recorder on.

Turn SET/CUE wheel as steadily as possible.

Check the symmetry of the wave form. the two signals should be  $50\% \pm 10\%$ . The duty cycle of Corrections to symmetric square—wave signal can be made with R1 on the CUE SENSOR PCB (signal on TP1 of the CUE SENSOR PCB) or R12 (signal on TP2).



wheel, check of the center position
site: The SHUTTLE wheel returns easily to its cen-SHUTTLE Prerequisite: ter position from both directions.

Remove lower tape transport cover.

Mount tape, switch recorder on.

Check that the "dead" range of the SHUTTLE wheel is symmetrical to the neutral position.

For this behalf, connect digital multimeter (range 10 V DC, display capacity at least two digits on the right of the decimal point) to the SHUTTLE potentiometer (+ \(\delta\) red wire; ground \(\delta\) brn wire).

Turn SHUTTLE wheel to the right until the tape starts moving, note the multimeter reading.

SHUTTLE wheel to the left until the tape moving, note the multimeter reading. Compute the mean value of the two readings. Measure the voltage in the center position

of the SHUTTLE wheel. The reading must correspond to the computed value.

Should this not be the case, the assembly must be moved, but reconnected for adjustment.

SHUTTLE wheel, adjustment of the center position
Lightly loosen the headless screw on the small toothed wheel (on the potentiometer shaft).

 Hold the SHUTTLE wheel in the center position and turn the potentiometer shaft with the aid of a screwdriver until the correct value is attained.

Recheck after the headless screw has been tightened.
 Reinstall the assembly.

#### 3.3.13 LC DISPLAY UNIT 1.820.233 GRP52

The contrast of the LC display can be optimized for different viewing angles.

 Remove front half of top cover (see 3.2.2).
 Optimize the contrast for the preferred viewing angle with the trimmer potentiometer R1 on the connector PCB with the trimmer potentiometer R1 on the connector PCB 1.820.797 (if the front half of the top cover is removed, R1 is accessible from above or, for preceding assemblies, respectively, from the tape tension sensor).

Adjustments and test points on the PCBs of the tape transport control

## Reference voltages for D/A converters:

As a rule, these adjustments are only necessary a corresponding PCBs have been repaired. Component ment drawings can be found in the diagram Section. these adjustments are only necessary after the Component arrange-

■ TAPE DECK SERIAL INTERFACE PCB 1.820.763: With R36, adjust TP2 to  $+5.0 \text{ V} \pm 10 \text{ mV}$ (relative to TP1).

■ SPOOLING MOTOR CONTROLLER 1.820.760: R34, adjust TP2 to  $-5.0 \text{ V} \pm 10 \text{ mV}$  (relative to TP1).

■ CAPSTAN INTERFACE PCB 1.820.727: With R12 adjust TP1 to  $\pm 10.0 \text{ V} \pm 10 \text{ mV}$  (relative to TP2).

- Test points:

  TAPE DECK PERIPHERY CONTROLLER 1.820.762:
  The two test points TP1 and TP2 are only used during production for checking the assembly.

  SPOOLING MOTOR DRIVE AMPLIFIER 1.820.775

- SPOOLING MOTOR DRIVE AMPLIFIER 1.820.775

   TP1: Ground.

   TP2: Voltage proportional to the motor current (16 A = 5 V or 1 A = 312.5 mV).

   TP3: Ground.

   TP4: Pulse-width-modulated control signal for motor power stage.

   CAPSTAN MOTOR DRIVE AMPLIFIER 1.820.774:
- CAPSTAN MOTOR DRIVE AMPLIFIER 1.82U.fr.

  TP1: Ground.

  TP2: Dirac pulse, TTL level, 76 kHz.

  TP3: Pulse-width-modulated signal, amplitude 0 to 50 V (relative to ground), voltage depends on capstan motor speed, 76 kHz.

  TP4: DC voltage, mean value of the voltage on TP 3, 0 50 V.

  TP5, TP6, TP7: 120' phase-shifted AC voltages. Waveform: sinusoidal, approximated by means of trapezoides.

  - TP8: Square-wave signal, TTL level, combination of the output signals of the three Hall effect sen-sors (triple frequency).

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To unlock the alignment adjustmats. Turn hex geven That is to Lett of Blue Buttons cew. To Lock alignment two hex Screw CW.

vsi set/cue wheel to adjust Valvis; USA Blue Arrevers to select whileh Parameter tradist

Hold Sty to change Tapet to Tope B

## SECTION 4 AUDIO

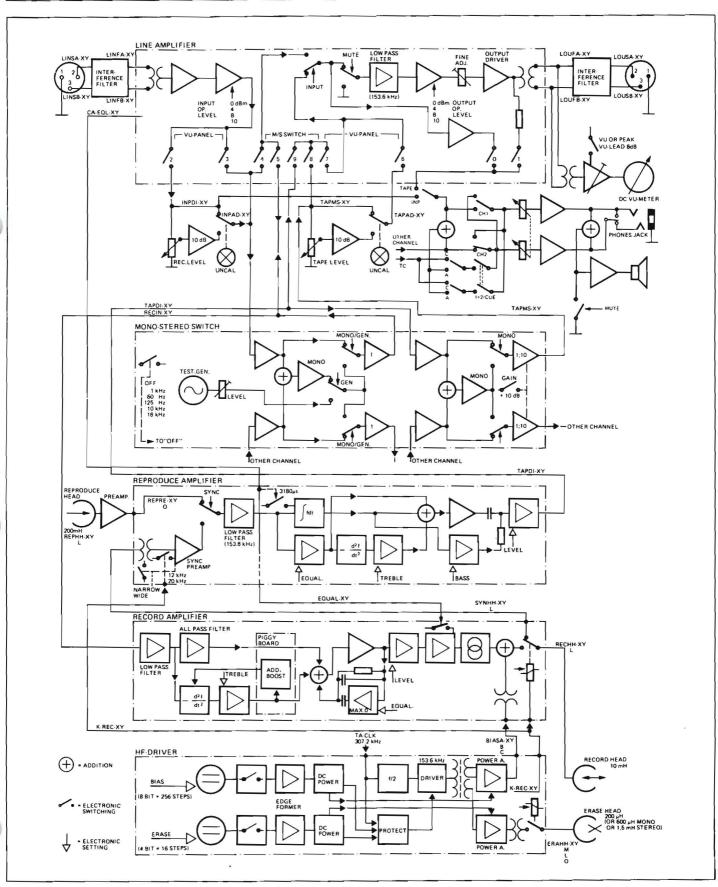


Fig. 4.1.1

# CIRCUIT DESCRIPTIONS

The audio section comprises:

- LINE AMPLIFIER
- REPRODUCE AMPLIFIER
- MONO/STEREO SWITCH (option)
- RECORD AMPLIFIER
- HF DRIVER

Input and output sockets (GRP22/GRP23/GRP24) LINE AMPLIFIER (GRP21 ELM45/ELM50);

- 1.820.749
- 1.820.714 (with input/output transformers)
- 1.820.715 (+ 1.820.862) (transformerless)

The following peripheral assemblies are also included:

- Headblock
- Level meters
- Monitor amplifier

■ Level controls for record and reproduce

depending

on

Time code channel (CODE READ/WRITE UNIT and CODE DELAY UNIT)

version

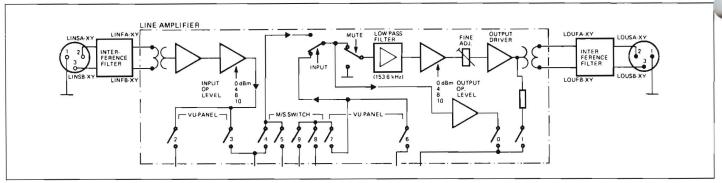


Fig. 4.1.2

LINE AMPLIFIER 1.820.714 (with input/output transformers)
The input signal is taken from the input The input signal is taken from the input socket via an interference filter to the line amplifier. The interference filter prevents that radio-frequency voltages from nearby transmitter installations can enter into the tape recorder.

The microprocessor makes the following settings via an 8way D-type flip-flop (IC1):

CA-DATAO...3 (Internal signals: CA-LLODB, CA-LL4DB, CA-LL8DB, CA-LLADB) switch the line level of the input and output to 0, 4, 8, or 10 dBm.

CA-DATA4 (CA-INPXY) switches from REP/SYNC to INP.
CA-DATA5 (CA-MUTXY) mutes the line output.
CA-DATA6 (CA-SYNXY) switches the REPRODUCE AMPLIFIER

from REP to SYNC. (CA-EQLXY) switches the NAB equalization

CA-DATA7 (3180 µs) on.

The flip-flop transmits the data at the D inputs with the leading clock edge to the Q outputs.

A low-pass filter before the input transformer eliminates

A low-pass filter before the input transformer eliminates parasitic frequencies. The input amplifier with IC3/2 is followed by the trimmer potentiometer R52 for compensating the manufacturing tolerances of the input transformer. The gain of IC3/1 is switched to the desired line level via the flip-flop outputs and Q1, Q2, and Q3. DIL switch S1 allows to match the line amplifier to the applicable recorder configuration: with or without VU-meter panel. With or without mono/stereo switch.

meter panel, with or without mono/stereo switch.

IC4, IC5, and IC7 switch the input of the line amplifier from REP/SYNC to INP; IC2, IC6, and IC8 mute the output. The input change-over/muting circuit is followed by a low-pass filter with IC10/2. With trimmer C25 the filter is aligned for maximum attenuation of the 153.6 kHz erase frequency. The gain of IC10/1 is switched by the flip-flop outputs and Q6, Q7, and Q8 to the desired line level. The output level is fine-adjusted with R81. IC9/2 drives the complementary output transistors. The signal is taken to the output socket via the balancing transformer and an additional interference filter.

The signal for the headphones socket and for the internal monitor amplifier is tapped before the transformer. The VU-meter is driven with the balanced output signal.

JSO and JS1 of DIL switch S1 allow to tap the head-phones/monitor signal at the output of IC9/1 (before output muting circuit; JSO ON, JS1 OFF; monitor level independent of the selected line level and the muting of the output) or at the line output (after output muting circuit; JSO OFF, JS1 ON).

<u>LINE AMPLIFIER 1.820.715 + LINE OUTPUT AMPLIFIER 1.820.862</u> (transformerless)

The input signal is taken from the input socket via an interference filter to the line amplifier. The interference filter to the line amplifier. The interference filter prevents that radio-frequency voltages from nearby transmitter installations can enter into the tape recorder.

microprocessor makes the following settings via an 8way D-type flip-flop (IC1):

LL8DB, CA-LL4DB) switch the line level of the input and output to 0, 4, 8, or 10 dBm. Also, the monitor level is kent constant. CA-DATAO...3 (Internal signals: CA-LLODB, monitor level is kept constant independent of the selected line level.

(CA-INPXY) switches from REP/SYNC to INP. CA-DATA4 (CA-MUTXY) mutes the Line output. (CA-SYNXY) switches the REPRODUCE AMPLIFIER CA-DATAS

CA-DATA6 from REP to SYNC.

(CA-EQLXY) switches the NAB equalization CA-DATA7 (3180 us) on.

The flip-flop transmits the data at the D inputs with the leading clock edge to the Q outputs.

A low-pass filter before the input amplifier (IC2, IC1D/2) amplifter Co., The common-mode input eliminates parasitic frequencies. impedance can be reduced with jumper JS1 (position

The CMRR (common mode rejection ratio) adjustment is executed with trimmer potentiometer R78 for low frequencies and with trimmer capacitor C18 for high frequencies. The gain of IC10/1 is switched to the desired line level via the flip-flop outputs and Q1, Q2, and Q3.

DIL switch S1 allows to match the line amplifier to the applicable recorder configuration: with or without VU-meter panel, with or without mono/stereo switch; monitor connected before the muting circuit or to the line output.

IC4, IC5, and IC8 switch the input of the time ampetite from REP/SYNC to INP; IC3, IC6, and IC9 mute the output. The input change-over/muting circuit is followed by a low and IC8 switch the input of the line amplifier pass filter with IC12/2. The gain of IC12/1 is switched by the flip-flop outputs and Q4, Q5, and Q6 to the desired

The output level is fine-adjusted with R93.

The signal is taken to the LINE OUTPUT AMPLIFIER PCB where it is inverted (IC203/1). The inverted as well as the non-inverted signals are fed into a complementary output stage each (IC202/1, Q203, 206, 207, 219, 220 or IC202/2, Q201, 202, 205, 213, 214).
From the two balanced output signals an unbalanced signal

is created in IC204/2 which is fed to the monitor path on the LINE AMPLIFIER PCB.

of the three windings of L201, whose winding directions are identical. Normally those winding directions identical. Normally, these currents are equal opposite direction. As soon as the currents are different one of the output lines connected to ground) an (e.g. which is amplified in IC204/1. Via the analog switch IC201, it is fed into the two output stages as an additional AF input signal. It causes a gain reduction of the output stage connected to ground, so that no output current can flow. On the other hand, the gain of the second cond output stage is increased in such a manner that the output signals on the two output lines become unbalanced but, however, the differential voltage remains the same as if there was no connection to ground. The large gain in the control loop causes a negligible voltage drop the windings of L201. Thanks to this, magnetic flux is built up and no distortion is added through L201.

voltage doubler circuit each is controlled by output stages (Q215, D201, C220, Q216, D203, C221 or Q217, D202, C222, Q218, D204, C223). If a large positive output 214 is revoltage swing of the output stage with Q213, swin switches the C220 the darlington transistor Q215 turns on and the positive supply rail to the negative pole of C220. Its positive pole has been charged to approx. +15 V through D201, now it is raised to about +25 V. A high positive supply voltage is made available for the output stage for a short while. If an increased negative supply voltage is required, an analogous operation takes place.

The heat sink of the output transistors is in thermal contact with R252 (NTC). If the output transistors dissipate excessive heat, the comparator IC7/2 on the LINE AMPLIFIER PCB mutes the input signal via IC3,  $\,$ 6, and 9 until the temperature has dropped to a permissible value.

suppress the compensation signal for several seconds in order to avoid uncontrolled transient effects at the line output until the quiescent output voltage of 1030000. reached a stable condition.

The signal is taken to the output socket via an additional interference filter

The VU-meter is driven with the balanced output signal.

JSO and JS1 of DIL switch S1 allow to tap the head-phones/monitor signal at the output of IC11/1 (before output muting circuit; JSO ON, JS1 OFF) or at the output of IC11/2 (corresponds to the line output, after output muting circuit; JSD OFF, JS1 ON).

4.1.2
Preamplifier in headblock (GRP60 ELMO2)
REPRODUCE AMPLIFIER (GRP21 ELM44/ELM49)

1.810.720/.711/.712

1.820.710

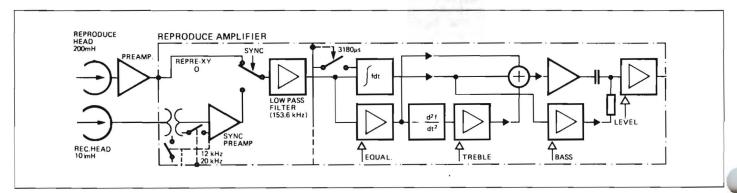


Fig. 4.1.3

A reproduce preamplifier 1.810.710/.711/.712 (GRP60 ELM02) is arranged between the reproduce head and the reproduce amplifier. This preamplifier which is arranged directly on the headblock (GRP60) produces a gain of approximately 28 dB. Q1 and Q4 are low-noise transistors; IC 1 is a low-noise, internally compensated dual opamp. The preamplifier is linear up to approximately 25 kHz. Only when both supply voltages are present (±15 V) is the preamplifier switched on (D1, Q2). This prevents current from flowing through the head winding when one of the supply voltages is missing and thus magnetization of the reproduce head. In two-channel and stereo recorders, cross talk between the two channels is minimized with the trimmer potentiometer R14.

The reproduce signal REPRE-XY is taken via screened conductors to the reproduce amplifier.

The reproduce amplifier is laid out in such a way that the reproduce signal or the SYNC signal can be processed. The signal is changed over from normal reproduction to SYNC with the signal CA-SYNO1 (02) via IC10 and the FET switches IC5 and IC6. The SYNC signal (SYNHH-XY/SYNHL-XY) is taken via the input transformer T1 and the SYNC amplifier comprising Q2 and IC7/2. The bandwidth of the SYNC amplifier can be switched from 12 kHz (NARROW) to approximately 20 kHz (WIDE) by means of a jumper in which case strong cross talk between the record and the SYNC reproduce channel is to be expected for 2-channel recorders.

The reproduce signal is taken via a low-pass filter with IC14/2. This filter is aligned with trimmer potentiometer C31 to achieve maximum attenuation of the 153.6 kHz erase frequency.

The signal CA-EQLO1 (O2) connects the 3180  $\mu s$  time constant (IC4/1) via IC9 and FET switch IC4.

A signal of the auxiliary path (inverting two-fold differentiating circuit) is added to the signal of the main path (integrator with IC14/1) for phase-linear correction of the air gap loss in the reproduce head.

The equalization time constant is set with IC16, IC15/1; the frequency response is set with IC13, IC 15/2 (treble) and IC8, IC 7/1 (bass). The data stored in RAM are transmitted from the MPU to the corresponding 256-step attenuators.

The reproduce level is set with IC11, IC12/2 (resolution 256 steps).

IC2 (DUAL BINARY TO 1-OF-4 DECODER/DEMULTIPLEXER) decodes the address of the corresponding digital/analog converter IC8, 11, 13 or 16 from the address lines of the CMOS bus (CA-ADR-R, -S, -T, -U) and activates this address for data transmission.

4.1.3
MONO/STEREO SWITCH OF
MONO/STEREO SWITCH WITH TEST GENERATOR (GRP21 ELM46)

1.820.720 1.820.724

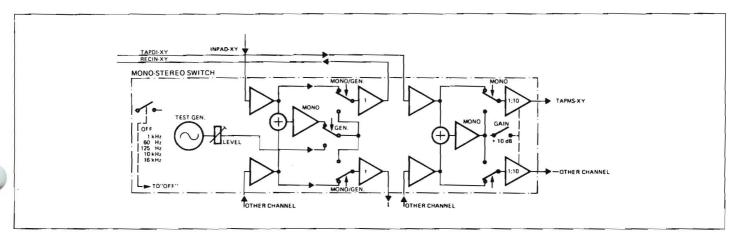


Fig. 4.1.4

The mono/stereo switch processes the two input signals and the two reproduce signals in two separate branches. The input signals INPAD-01, 02 are taken from the outputs of the two line input amplifiers with internal reference level 0 dBm to the mono/stereo switch. The signals buffered by the voltage followers IC3/1, 3/2 are taken directly to IC6/1, 6/2 in stereo mode, or added in mono mode via the resistors R42 and R37 and amplified in IC25/1. The level of the mono signal is matched with R205. Mono/stereo changeover is effected via IC 19 (PROM) and the comparators IC13/1, 16/2 by means of FET switches. The operating mode is selected with the jumper JS2: mono signal from INPAD-01 + INPAD-02 or only from INPAD-01. The output signals from IC6/1 and IC6/2 (RECIN-01, -02) are taken with internal reference level to the record and the line output amplifiers.

The reproduce signals TAPDI-01, 02 are taken from the reproduce amplifiers to the inputs of the voltage followers IC10/1, 10/2; they are decoupled and added by R81 and R80 to a mono signal. The mono signal is amplified in IC31/1, the level can be adjusted with R206. The mono/stereo changeover is implemented with FET switches. The operating mode can be selected with jumper JS3: the mono signal can either be connected to channels 1 + 2 (TAPMS-01, -02) or to channel 1 only (TAPMS-01). The signals TAPMS-01, -02 are transmitted to the line output amplifiers.

Test generator (only 1.820.724)

The test frequencies are produced by the function generator IC2. The balance is adjusted with R8, the sine shape with R20. The frequencies are changed over with IC20 (PROM) and Q1 ... Q5.

When the upper button (FREQ) is pressed, the test generator is switched on (REF pilot lamp [DL205] is on, i.e. the reference frequency, normally 1 kHz, is selected). If this button is pressed repetitively, the frequency changes as follows:

60 Hz - 125 Hz - REF - 10 kHz - 16 kHz - OFF - REF - etc.

With the lower button (LEVEL) the generator level can be switched to a level that is 10 dB lower than the nominal level. When "-10 dB" is selected, the gain in the reproduce branch of the mono/stereo switch is automatically boosted by 10 dB; this means that the set value of the VUmeter display is the same as for nominal level when measurements are made in record/reproduce mode.

The lower button (LEVEL) is only effective when the test generator has previously been enabled with the upper button (FREQ). After the test generator has been switched off and on again with the upper button, nominal level is available on the test generator output.

The output signal of the function generator is taken via IC31/2 and IC25/2 to the mono branch. The output signals of IC7/1 23/2 decide whether the input signals (INPAD-01, -02) or the test signal are taken to the record amplifiers (RECIN-01, -02). This changeover is implemented with FET switches.

The generator level can be adjusted with R208.

#### 4.1.4 HF DRIVER (GRP21 ELM42/ELM47)

#### 1.820.713

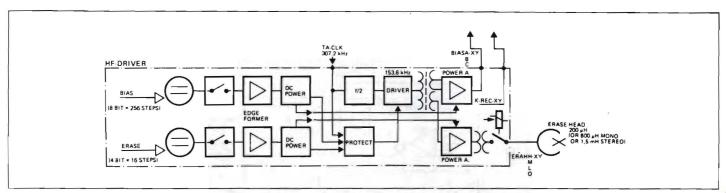


Fig. 4.1.5

The erase and bias currents are prepared on the HF driver.

The quartz reference of the microprocessor TA-CLK with 307.2 kHz is divided in IC3 (DUAL JK NEGATIVE EDGE-TRIGGERED FLIP-FLOP) to 153.6 kHz. The IC outputs are taken to the HF driver stage IC11.

The erase and bias output stages are driven by the windings of the transformer

The DC voltage reference for the erase current is defined (in 16 steps) by IC1 (OCTAL D-TYPE FLIP-FLOP) through data lines CA-DATA-0  $\dots$  3. The DC voltage reference for the bias current is defined by the MASTER MPU via the 256-step attenuator IC2.

also decodes the commands for switching on the erase IC1 and bias current. CA-SAFE = 0 activates IC1.

The DC voltage references defined by the microprocessor are switched on or off by Q1 (erase current) and Q2 (bias current). IC9/1 or IC10/1 respectively shapes the ON- and OFF-switching edge in such a way that click-free record drop-in and drop-out is possible. The DC currents supplied by IC9/2, Q13, and IC10/2, Q12 to the corresponding power amplifier stages are proportional to the required output output

currents. Q11 and Q10 respectively control these currents and in the event of an overload switch the HF driver stage IC11 off via D12 and comparator IC8/1.

The clock signal (IC3, PIN 9) is checked; the HF driver stage is also switched off via IC8/1 if the clock is missing or corrupted.

The standby signal TA-ACT-01 (-02) is connected via IC8/2 in order to signal to the microprocessor that channel 1 or 2 is ready. The TA-ACT signals check whether or not record amplifiers are plugged in.

The erase current is switched to the primary windings of T1 alternately by Q5 and Q8 in time with the erase frequency. The erase current obtains its sine—wave form alternately by Q5 and Q8 in time with the erase frequency. The erase current obtains its sine-wave form through the parallel-resonant circuit consisting of the inductance of the secondary winding of T1 and C3. A second resonant circuit consisting of the inductance of the erase head and a capacitor (built into the head block) is loosely coupled to a part of the secondary winding of T1 via R4.

IC7, IC4 and relay K1 switch the erase current on or off.

The bias current is generated by means of Q3 and Q4 in the same way as the erase current and taken to the output transformer on the RECORD AMPLIFIER PCB.

# RECORD AMPLIFIER (GRP21 ELM42/ELM48)

## 1.820.712

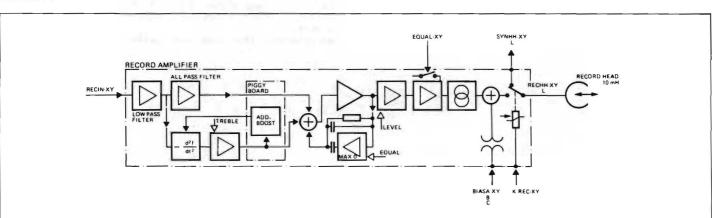


Fig. 4.1.6

The audio signal RECIN-01 (-02) from the line amplifier is taken via a low-pass filter including IC7/1. The low-pass filter is laid out for maximum attenuation of the 153.6 kHz erase frequency.

The treble losses of the record head air gap are compensated with phase-linear correction elements. The inverting two-fold differentiating circuit (IC10) is followed by the control element for treble adjustment IC8, IC9/1 (record frequency response). A portion of the audio signal is mixed via the plug-in ADAPTATION board as a positive feedback into the input of IC 10/2. The summed components of the corrected record signal are amplified by IC9/2.

The equalization time constant is set with IC5, IC6/1, the record level is set with IC3, IC6/2. The audio parameters stored in the RAM are transmitted from the MPU to the corresponding 256-step attenuators.

The 3180  $\mu s$  time constant is switched by EQUAL-01 (-02) via the FET switch IC2.

The record signal is taken to opamp IC4/2 wired as a current source.

The signal AFCSW-01 (-02) controls the record current via Q1. The record and bias current are added via T1. The two HF filters with L3 and L4 prevent stray pickup of the bias frequency by the other circuit elements. The bias current is drained via the series resonant circuit with L2; a closed bias current loop is thus formed via the two windings of T1 and the winding of the record head.

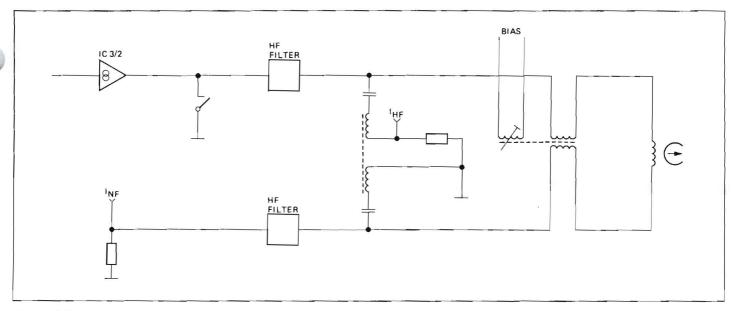


Fig. 4.1.7

### 4.1.6 Time code channel

## General

Two-channel recorders can be equipped with a time code channel. The 0.38 mm wide code track is located between the two audio tracks. The time code (80 bits per full frame according to SMPTE) is recorded with bias as a biphase modulated signal.

The tape flux is 729 nWb/m peak-to-peak ±3 dB.

A reproduce (read) head is integrated in the audio erase head {A}. This head "reads" during audio reproduction/recording and slow forward editing. A second time code head is arranged on the far right of the headblock {B}. This is a combined erase/reproduce/record head (read/write head).

This head "reads" during spooling and slow reverse editing and is able to record the time code signal.

## Time code heads:

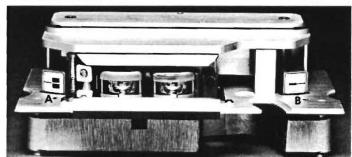


Fig. 4.1.8

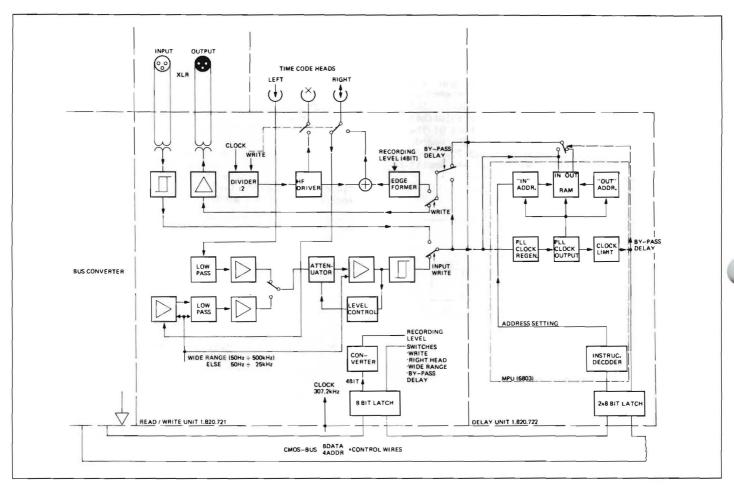


Fig. 4.1.9.

## CODE READ/WRITE UNIT (GRP21 ELM40)

## 1.820.721

## Time code reproduction:

signal of the left-hand head REPHH-TC, REPHL-TC (active during audio reproduction or recording) is taken via a low-pass filter/amplifier with IC15/1. The low-pass filter suppresses the 153.6 kHz erase frequency (cross talk audio-erase frequency -> time code reproduction). The signal of the right-hand code head RECHH-TC is taken to a low-pass filter/amplifier IC12, IC16. The bandwidth of the filter is automatically switched over with Q7. The band-width is large during spooling and small during slow reverse editing.

The outputs of the two filters/amplifiers (signal of the left-hand or right-hand code head) are connected with FET left-hand or right-hand code head) are connected with FET switches Q10, Q11 to the limiter (IC13, changeover switch IC4/2, IC11, IC14, Q9). Even for variable speeds this limiter supplies a constant-level output signal which is shaped into a square-wave signal in a Schmitt trigger (IC6/1, IC10, IC7). The time code reproduce signal is taken either directly or via the CODE DELAY UNIT (jumper JS2 or changeover switch IC4/1) to the line output amplifier IC2, the line balancing transformer T2, and as the fier ICZ, the line balancing transformer T2, and as signal LOUFA-TC, LOUFB-TC to the balanced and floating output socket.

Time code recording:
The recording signal LINFA-TC, LINFB-TC is taken via the balanced and floating input connector to the input transformer T1 and the changeover switch IC4/2 to a Schmitt trigger (IC6/1, IC10, IC7) and to the CODE DELAY UNIT. output signal of the CODE DELAY UNIT

with the changeover switch IC4/3 to the input of the record amplifier. With Q5, IC9 the signal edges are shaped in such a way that a trapezoidal recording signal is attained.

The signal TA-CLK from the MPU is divided by the MPU in IC8 from 307.2 kHz to 153.6 kHz and converted in the HF driver IC5 to an erase and a bias signal. The erase current is decoupled via T3 and taken via screened lines as signal ERAHH-TC/ERAHL-TC to the erase head. The bias TA-CLK from the MPU is divided by the MPU current (from the secondary winding of T3, via the trimmer capacitor C9) is added to the trapezoidal recording signal. The changeover relay K1 determines whether the combination head operates as a reproduce or record head. The output signal RECHH-TC, RECHL-TC is taken via screened lines to the combination head.

- The MASTER MPU establishes the following settings via the CMOS bus (via 8-way flip-flop IC1, address decoder IC3):

  Record level (4 bits, of which 3 are used), adjustable with R2 (7.5 ips), R8 (15 ips), and R10 (30 ips).

  Record function (CA-WRTTC = 1)
- Slow reverse editing, right-hand code channel,

- Spooling, right-hand code head, wide-band (CA-RS1TC = 1)

  Bypassing the DELAY UNIT (CA-BPDTC = 1)

  INPUT, input signal to output (CA-RS1TC = 1, CA-RS2TC = 1, CA-BPDTC = 1)

For bias and record level adjustment refer to Section 4.7.

## CODE DELAY UNIT (GRP21 ELM41)

## 1.820.722

The time code signal is delayed in the CODE DELAY UNIT in such a way that the audio and time code signals on the tape coincide, i.e. the head spacing is automatically com-

An additional microprocessor (6803) is used for this

purpose.

A PLL (PHASE LOCKED LOOP) with clock regeneration is implemented by the programming (software).

The external microprocessor memory comprises 2K PROM (IC18) and 8K RAM (IC14). The RAM can hold 8192 half-bits,  $\triangleq$  51 full frames.

Information from the MASTER MPU (1.820.786) is transmitted via the TTL bus, the bus converter and the CMOS bus to two 8-bit latches IC8, IC9 of the DELAY UNIT and comprises:

- required delay
- direction of tape travelbypass command.

#### 4 2 CALIBRATION

The audio parameters are copied from RAM and loaded into the registers of the audio amplifiers each time the recorder is switched on, after a microprocessor reset, or when changing the tape speed, the tape type or the equalization.

When new parameters are entered through the SET/CUE wheel or the serial interface, the old parameters stored in the RAM and in the registers of the audio amplifiers are overwritten with the new data.

If the parameters in the RAM are lost, the st meters are automatically loaded from the PROM. the standard para-

#### 4.2.1 Introduction

#### General

is assumed that all mechanical adjustments of the recorder to be calibrated are correct (especially with respect to tape tensions and tape guidance).

soundheads and the tape guidance elements should be cleaned and demagnetized before the recorder is calibrated.

calibration steps should always be performed in the following sequence:

#### REPRODUCE ADJUSTMENTS

With preferred studio tape speed:

- Level
- Azimuth alignment of the reproduce head (note 1)
- Frequency response (note 2)

For all other tape speeds:

- Frequency response (note 2)

Note 1: Depending on the type of reference tape used, minor deviations between the different speeds can occur. In this case the final azimuth alignment should be made with the preferred studio speed.

Note 2: Studio tape recorders are usually calibrated with ote 2: Studio tape recorders are usually calibrated with full-track calibration tapes. Fringing effects can cause frequency response errors at low frequencies in stereo and two-channel recorders. It is, therefore, recommended to align the response for low frequencies with tape present, i.e. to repeat the reproduce frequency alignment after the record alignment with tape if no calibration tapes with correct guard track width are available.

## RECORD ADJUSTMENTS

With preferred studio tape speed:

- Record level prealignment
- Azimuth alignment of the record head gap (bias parameters to approximately the same values for both channels!)
- Record level
- Frequency response

For all other tape speeds:

- Record level prealignment
- Bias
- Record level
- Frequency response

#### SYNC REPRODUCTION

All tape speeds (except 3 3/4 ips):

- Level
- Frequency response

4.2.2 Level definitions

Voltage level 0 dBm = 0,775 V

#### Voltage level O dBm (= 0.775 V):

Is deduced from the power level of 1 mW in a load of value. If applied to a resistance of 600  $\Omega$ , a voltage drop of 0.775 V occurs. This voltage is defined as voltage level O dBm (without referring to any load).

## 0 dBu (= 0.775 V):

Corresponds to 0.775 V without referring to any load resistance. [dBu] is used now and then instead of voltage level [dBm]

Line Level: + 4.0 DBM = 1.228 V. R.M.S. = 0.0 VU

- The level available at the output of a tape recorder reproducing a recording with reference density, or
- the level producing a recording with reference flux density when fed in the input of a tape recorder. the

## Voltage "Bezugspegel":

CCIR designation for line level. This level produces an indication of O dB on a quasi peak reading meter.

## Standard Reference Level (Operating Level):

Designation common in USA for the reference flux density of 250 nWb/m (for high output tapes) or 200 nWb/m, resp. (for standard tapes). This level produces an indication of O VU on a VU-meter.

Designation common in USA for a level that is as a rule 8 to 10 dB greater than operating level. To simplify matters, a "peak level" of +6 dB (twice the voltage level) relative to operating level is used for tape recorder alignment. This peak level could passably and sometimes does come close to the Maximum operate level at the 30 %, 3rd Harmonic Dutantion level, and may exceed the +6 "Peak Sevel"

A820

#### NAB alignment:

| Definition                   | Line level<br>[dBm] | VU-meter indic.,<br>Jumper in "VU"<br>position<br>[VU] |
|------------------------------|---------------------|--|
| OPERATING LEVEL "PEAK LEVEL" | + 4<br>+10          | 0 +6   |

Reproduce reference Level = operating level

## CCIR/IEC alignment:

| Definition    | Line level<br>[dBm] | VU-meter indic.,<br>Jumper in "PEAK"<br>position<br>[dB] |
|---------------|---------------------|--|
| "BEZUGSPEGEL" | + 6                 | 0  |

### 4.2.3 Equalizations

Equalization networks have been built into the reproduce paths for correcting the frequency response.

The attack points are referred to as transition frequencies or transition time constants respectively (1 / 2  $\pi$  f) and have been standardized by various organizations (IEC, NAB, AES, CCIR).

| TAPE<br>SPEED        | TRANSITION FREQUENCIES, LOW AND HIGH (TRANSITION TIME CONSTANTS) |  |               |  |  |  |  |  |
|----------------------|--|--|---------------|--|--|--|--|--|
|                      | IEC-1968   | NAB-1965                                     | NAB-1975      |  |  |  |  |  |
| 9,53 cm/s            | 50 Hz; 1800 Hz   | 50 Hz; 1800 Hz                               | (-)           |  |  |  |  |  |
| 3,75 ips             | (3180 us; 90 us)   | (3180 us; 90 us)                             |               |  |  |  |  |  |
| 19,05 cm/s           | O Hz; 2240 Hz  | 50 Hz; 3150 Hz                               | O Hz; 3150 Hz |  |  |  |  |  |
| 7,5 ips              | ( ω ; 70 us)   | (3180 us; 50 us)                             | ( ω ; 50 us)  |  |  |  |  |  |
| 38,10 cm/s           | O Hz; 4500 Hz  | 50 Hz; 3150 Hz                               | (-)           |  |  |  |  |  |
| 15 ips               | ( ω ; 35 us)   | (3180 us; 50 us)                             |               |  |  |  |  |  |
| 76,20 cm/s<br>30 ips | O Hz; 9000 Hz<br>( m ; 17.5 us)                                  | AES 1971<br>O Hz; 9000 Hz<br>( oo ; 17.5 us) | (-)           |  |  |  |  |  |

4.2.4 Magnetic reference flux, standard calibration data

A tape recording made with reference level should  $% \left( 1\right) =\left( 1\right) +\left( 1\right) +$ 

The following standard settings are made at the factory:

### NAB settings:

| ■ Line voltage:                  | 220 V          |
|----------------------------------|----------------|
| ■ Line frequency:                | 50 Hz          |
| ■ Line level:                    | +4 dBm         |
| ■ Indication of VU-meter at line | level: 0 VU    |
| ■ Load impedance:                | δ00 Ω          |
| ■ Tape type:                     | Scotch 3M 226  |
| ■ Tape flux at line level: 3 3/4 | ips: 200 nWb/m |
| 7 1/2                            | ips: 250 nWb/m |
| 15                               | ips: 250 nWb/m |
| 30                               | ips: 250 nWb/m |
|                                  |                |

## CCIR settings:

| Line  | volta | age: |      |         |   |      |       |         |         | 220 V |
|-------|-------|------|------|---------|---|------|-------|---------|---------|-------|
| Line  | frequ | iend | y:   |         |   |      |       |         |         | 50 Hz |
| Line  | Level | L:   |      |         |   |      |       |         | 4       | 6 dBm |
| India | ation | 1 of | VU-n | neter a | t | line | Level |         |         | +6 VU |
| Load  | imped | danc | e:   |         |   |      |       |         |         | 600 Ω |
| Tape  | type: | :    |      |         |   |      |       |         | AGFA PE | R 528 |
| Tape  | flux  | at   | line | level:  | 3 | 3/4  | ips,  | stereo: | 400     | nWb/m |
|       |       |      |      |         | 3 | 3/4  | ips,  | mono:   | 250     | nWb/m |
|       |       |      |      |         | 7 | 1/2  | ips,  | stereo: | 510     | nWb/m |
|       |       |      |      |         | 7 | 1/2  | ips,  | mono:   | 320     | nWb/m |
|       |       |      |      |         |   | 15   | ips,  | stereo: | 510     | n₩b/m |
|       |       |      |      |         |   | 15   | ips,  | mono:   | 320     | nWb/m |
|       |       |      |      |         |   | 30   | ips,  | stereo: | 510     | nWb/m |
|       |       |      |      |         |   | 30   | ips,  | mono:   | 320     | n₩b/m |

The recorders are calibrated for one of the two types of equalization optionally until further notice.

# 4.2.5 Calibration tapes

Calibration tapes are used for aligning the reproduce path of tape recorders. Such tapes are magnetized across their full width. A separate tape is used for each speed.

## IMPORTANT

To prevent unintentional erasure of valuable tapes, all channels should be switched to SAFE while adjustments are being made! On recorders without a SAFE button, MASTER SAFE is to be switched on.

Calibration tapes are divided into the following test  $\ensuremath{\mathsf{sec}}\xspace$  tions:

## Reference Level Section

(Reference flux = 320 nWb/m for 7 1/2, 15, and 30 ips, 257 nWb/m for 3 3/4 ips) should produce line level on the output of the tape recorder.

The output level is to be adjusted to the required line level during the reproduction of this test section which has a length of approximately 60 to 180 seconds.

NAB calibration tapes with a reference flux of 200 nWb/m should produce an output level of -4 dB relative to 320 nWb/m; CCIR calibration tapes with a reference flux of 320 nWb/m produce on stereo recorders an output level of -4 dB relative to line level and 510 nWb/m.

Reference frequencies: 333 Hz or 500 Hz at 3 3/4 ips; 1 kHz at 7 1/2 to 30 ips (there are also NAB calibration tapes with 700 Hz reference frequency).

Q-5dB RELATIVE TO 370 NWB/M.

## Azimuth Alignment Section 8KHz + 16 HHz

For adjusting the vertical ("azimuth") alignment of the reproduce head gap. This test section is divided into a short segment containing the reference frequency (for coarse adjustment) and a long segment with 10 kHz for fine adjustment. NAB calibration tapes may be formatted differently. The level of this section is normally 10 dB below the line level.

The head is aligned to maximum output voltage with the azimuth adjustment screw. On two-channel and stereo recorders it is possible to align to minimum phase difference of the two channels with the aid of a 2-channel oscilloscope or an AF millivoltmeter with two inputs and summation.

Important: If significant changes in the reproduce head azimuth are made, other voltage maxima with lower levels will occur!

With correct equalization of the reproduce amplifier, the reproduce level is identical for recordings that are made with reference frequency and with 10 (8; 16) kHz.

#### Frequency Response Section

For determining and adjusting the reproduce response at specific frequencies. NAB calibration tapes exist that produce frequencies other than those listed in the following table.

| REFERENCE TAPE   |  | CCIR   |   |   | NAB  |                             |   |             |  |  |
|--|--|--|---|---|--|-----------------------------|---|-------------|--|--|
| TAPE SPEED<br>[cm/s]; [ips]                              | 9,5  | ,5 19 38 76  |   |   | 3,75   | 7,5                         | 15  | 30<br>(AES) |  |  |
| REF.LEV. SECTION:<br>REF. FREQUENCY<br>REF. FLUX DENSITY | 333 Hz<br>257  | 1 kHz<br>320 nWb/m                                       |   |   | 500 Hz<br>200  | 1 kHz (700 Hz)<br>200 nWb/m |   |             |  |  |
| AZIMUTH ALIGNMENT<br>SECTION:<br>(-10 dB)                | 333 Hz<br>10 kHz   | 1 kHz<br>10 kHz  |   |   | 250 Hz<br>4 kHz<br>8 kHz   |                             | (700)<br>B kHz<br>6 kHz                               |             |  |  |
| FREQUENCY RESPONSE SECTION: (CCIR: -20 dB) (NAB: -10 dB) | 333 Hz<br>31,5<br>40<br>63<br>125<br>250<br>500<br>1 kHz<br>2<br>4<br>6,3<br>8<br>10<br>12,5<br>14<br>16<br>333 Hz | 33<br>44<br>63<br>11<br>22<br>50<br>11<br>11<br>11<br>11 | 3<br>25<br>50<br>00<br>1 kH<br>2<br>4<br>6,3<br>8<br>0<br>2,5 | z | 31,5 Hz<br>63<br>125<br>250<br>500<br>1 kHz<br>2<br>4<br>5<br>6,3<br>8<br>10<br>500 Hz | 6.<br>1:<br>2:<br>5:        | 25<br>50<br>000<br>11 kH<br>22<br>4<br>8<br>0'<br>2,5 | łz          |  |  |

### 4.2.6 Preparatory steps

Before the calibration is started, the parameters of the recorder must be programmed for the desired application. Also refer to Section 2.6, "SOFT KEYS".

#### Line level:

Set required level:

| "BEZUGSPEGEL"<br>(CCIR) | FUNCTION No.               |  |  |
|-------------------------|----------------------------|--|--|
| 6 dBm                   | 009                        |  |  |
| 10 dBm                  | 010                        |  |  |
| 14 dBm                  | 011                        |  |  |
| 16 dBm                  | 012                        |  |  |
|                         | (CCIR) 6 dBm 10 dBm 14 dBm |  |  |

These four functions (009 to 012) are applicable to match the tape recorder to the line level used in the studio. Operating level as well as "Bezugspegel" is indicated on the service display. The first (smaller) of the two level indications is referred to NAB standards, the second to CCIR.

In case that any of the four gradations is adequate, that value should be selected that comes closest to the studio level, and the internal record and reproduce levels should be adjusted in such a way that the recorder operates with the desired bias.

#### Examples:

■ Function O11, CCIR equalization, "Bezugspegel" = 14 dBm, VU-meter amplifier set to PPM characteristic (jumper on VU-meter amplifier), PPM reading at "Bezugspegel" O VU.

Reading of service display when recorder ready:

L RANGE: 8/14 dBm

Function 010, NAB equalization, operating level = 4 dBm, VU-meter amplifier set to VU characteristic (with jumper on VU-meter amplifier), VU-meter reading at operating level 0 dB.

Reading of the service display when recorder ready:

L RANGE: 4/10 dBm

■ Function 012, CCIR equalization, line level 15 dBm, selected "Bezugspegel" = 16 dBm (record and reproduce levels internally adjusted to match the required line level), VU-meter amplifier set to PPM characteristic (jumper on VU-meter amplifier), PPM reading at "Bezugspegel" 0 VU.

Reading of service display when recorder ready:

L RANGE: 10/16 dBm

Checking the output level and the VU-meter reading

Connect AF generator to the line inputs (channels 1 and 2) and feed 1 kHz with line level.

Connect AF millivoltmeter to line output channel 1 and load the output with 600  $\Omega$  (standard) or with 200  $\Omega$  (minimum).

Switch the recorder on and press the INP buttons of channels 1 and 2. Release all UNCAL buttons (calibrated level). Or, also possible for recorders without VU-meter panels or channel mode selector units: The first position of the AUDIO ALIGNMENT block (refer to 2.6, SOFT KEYS) is used for switching all audio channels to INPUT; press three times. The LC display indicates:

LINE OUT CALIBRATION AUDIO CHANNELS INPUT

As long as this message is present, the audio channels of the recordes are switched to INPUT (if VU-meters or channel mode selector units are installed, the yellow INPUT LEDs are on).

Adjust output level to line level with the aid of the trimmer potentiometer on every LINE AMPLIFIER, accessible from the front.

Check VU-meter reading:

- VU characteristic: line level should give a reading of O VU (NAB).
- PPM characteristic: line level should give a reading of -6 dB (NAB) or 0 dB (CCIR).

The VU-meter reading can be corrected with the trimmer potentiometer on the back of the VU-meter amplifier.

#### Adjusting the CMRR of the line inputs:

(CMRR = common mode rejection ratio)

This adjustment is required only after repairs on the LINE AMPLIFIER TRANSFORMERLESS 1.820.715.00 .

- Interconnect the two lines A and B at the line input of the concerned channel. Connect AF generator to both lines and feed in 1 kHz or 20 kHz, resp., with line level, relative to ground.
- Connect AF millivoltmeter to the line output of the concerned channel. ■ Switch recorder to INPUT (see above). ■ Adjust AF generator to 1 kHz, adjust
- Adjust AF level with minimum output level with typ. -50 dB). trimmer potentiometer R78 (≤ -40 dB,
- Adjust AF generator to 20 kHz, adjust minimum output level by means of trimmer capacitor C18 ( $\leq$  -40 dB, level by means of trimme.

  typ. -50 dB).

  Because of the minor mutual action these adjustments by
- Because of

## CCIR/NAB equalizations

Select the desired equalization on the function and pro-CCIR or NAB (press changeover together with STOP).

the same calibration data (level, frequency response, bias) are desired for both types of equalization, proceed as follows:

- Select preferred equalization.
- Set and check all audio parameters according to the alignment instructions.
- on function 033 (CCIR/NAB SAME; Switch both equalizations, refer to Section 2.6, for SOFT KFYS)
- Retrieve and re-store all previously set parameters. same parameters are now programmed for both equalizations.

The equalization time constants can be changed selectively for special situations. In this case it is essential that the function CCIR/NAB SAME is switched off!

### Tape type A/B

Set tape type selector to the desired position (press together with STOP key!)  $% \left( \frac{1}{2}\right) =\frac{1}{2}\left( \frac{1}{2}\right) +\frac{1}{2}\left( \frac{1}{2}$ 

Repeat the reproduce and record adjustments step by step for the second tape formulation and for each speed!

1/4 " IAAL A FOR B FOR 4.2.7 FOR 1/2" TAPE

Input procedure

The procedure may be simplified by folding out the status tree diagram (Section 2.6).

Reprogramming of the audio parameters is also possible when the programming lock is closed (switch [28], however, the selected parameters will be lost when the recorder switched off and on again since they are replaced by the previously stored parameters.

#### Example

Setting of the audio parameter "reproduce level": tape speed 15 ips, CCIR equalization, tape type A, channel 2:

|  | T  |
|--|--|
| Action   | Service display indic.                       |
| Turn programming enable switch [28] to counterclockwise stop (Allen key No. 2.5) |  |
| Recorder in STOP mode  | L RANGE ./. dBm                              |
| <b>♦</b> /NEXT   | USER SET UP ALIGNMENT MODE                   |
| <b>∀/NEXT</b>  | ALIGNMENT<br>AUDIO DECK AUX                  |
| <b>∳</b> /NEXT   | LINE OUT CALIBRATION AUDIO CHANNELS INPUT    |
| <b>∀</b> /NEXT   | LVL REP 15.0 CCIR A<br>CH1 <u>6</u> 6 CH2 66 |
| >/CURSOR (switchover to CH 2)  | LVL REP 15.0 CCIR A<br>CH1 66 CH2 66         |
| Select desired level with SET/<br>CUE wheel (indication in HEX)                  | LVL REP 15.0 CCIR A<br>CH1 66 CH2 F9         |
| Save with STORE  |  |
| Press 1 four times   | L RANGE ./. dBm                              |
| or:  | or:  |
| with ♥ to the next setting   | TRB REP 15.0 CCIR A<br>CH1 39 CH2 <u>3</u> 9 |

## Reading out the programmed value

The gain range of the individual amplifiers can be varied in 255 steps between 0 and the maximum (corresponds to 256 discrete values). These 256 values are equivalent to 256 settings of a potentiometer between its two limit positions.

The programmed value is indicated on the service display. The hexadecimal format has been chosen to conserve space (00 for 0 and FF for 255).

## Examples of hexadecimal numbers:

| DECIMAL     | 0 | 1 | Z | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| HEXADECIMAL | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A  | 8  | С  | D  | E  | F  |

| HEXADECIMAL | DECIMAL | % of FF resp. 255 |  |  |  |
|-------------|---------|-------------------|--|--|--|
| 1 A         | 26      | 10                |  |  |  |
| 33          | 51      | 20                |  |  |  |
| 4D          | 77      | 30                |  |  |  |
| 66          | 102     | 40                |  |  |  |
| 80          | 128     | 50                |  |  |  |
| 99          | 153     | 60                |  |  |  |
| B3          | 179 70  |                   |  |  |  |
| CC          | 204 80  |                   |  |  |  |
| E6          | 230     | 90                |  |  |  |

## IMPORTANT

The displayed hexadecimal values should indicate to the user the range in which the corresponding amplifier is operating. No voltages can be extrapolated from these numbers!

## Modifying the parameters

Turning the SET/CUE wheel clockwise or counterclockwise has the same effect as rotating a potentiometer clockwise or counterclockwise.

In contrast to the adjustments by means of potentiometers it is possible to accurately reproduce the values stored in RAM at any time (e.g. by pressing the STOP key).

## Storing the parameters

When the desired value has been attained (for example line level 10 dBm = 2.5 V) it can be stored in RAM by pressing the STORE key.

For comparison purposes the hexadecimal amplifier settings can be recorded in a table. For a complete documentation four of these tables are required for every recorder (two tape types, two equalization standards; or two tables if the same parameters are desired for NAB and CCIR)

### Example:

| A8ZO NO<br>EQUALIZ<br>- NAB |        |     |     |     | TAPE | SPEED |     |      |     | REMARKS |
|-----------------------------|--------|-----|-----|-----|------|-------|-----|------|-----|---------|
| - CCIR                      | 0      | 30  | ips | 15  | ips  | 7.5   | ips | 3.75 | ips |         |
| - SAME O<br>TAPE A O/B O    | CH1    | сн2 | CH1 | CH2 | СН1  | CHZ   | СН1 | CH2  |     |         |
| REPRO                       | LEVEL  |     |     |     |      |       |     |      |     |         |
|                             | TREBLE |     |     |     |      |       |     |      |     |         |
|                             | BASS   |     |     |     |      |       |     |      |     |         |
|                             | EQUAL. |     |     |     |      |       |     |      |     |         |
| RECORD                      | LEVEL  |     |     |     |      |       |     |      |     |         |
|                             | TREBLE |     |     |     |      |       |     |      |     |         |
|                             | BIAS   |     |     |     |      |       |     |      |     |         |
|                             | EQUAL. |     |     |     |      |       |     |      | *** |         |
| SYNC                        | LEVEL  |     |     |     |      |       |     |      |     |         |
|                             | TREBLE |     |     |     |      |       |     |      | 200 |         |
|                             | BASS   |     |     |     |      |       |     |      |     |         |
|                             | EQUAL  |     |     |     |      |       |     |      |     |         |

# REPRODUCE ADJUSTMENTS

# Preparatory steps

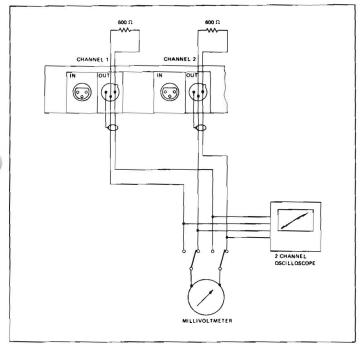


Fig. 4.3.1

Connect AF millivoltmeter to line output channel 1. Load the line outputs for all measurements with  $600\ \Omega$  (or 200 0).

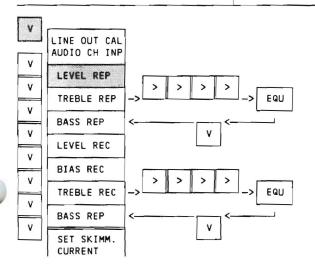
Switch recorder ON.

Select preferred studio tape speed.

Press SAFE and REP keys of channels 1 and 2. Release all UNCAL buttons (calibrated level). On recorders without VUmeter panel press MASTER SAFE.

Mount calibration tape for the corresponding equalization and speed and spool forward to the Reference Level Section.

4.3.2 LVL REP 15.0 NAB B Level adjustment LEVEL REPRO CH1 66 CH2 66



to the LVL REP position with the keys \\*/NEXT, Page >/CURSOR, €/CURSOR, and ↑/LAST (possibly with the aid of the status tree diagram, Section 2.6, where also a stepby-step programming example can be found).

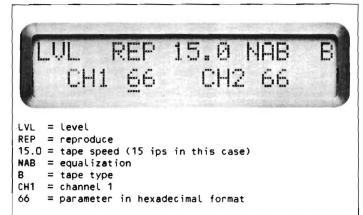


Fig. 4.3.2

Initially the cursor is located below the parameter for

Start recorder in PLAY mode.

reproduce level can be set to the desired line level The by turning the SET/CUE wheel. Press STORE.

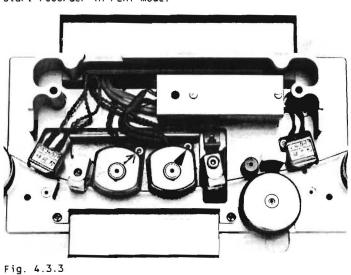
stereo recorders switch the millivoltmeter to the line output channel 2. The cursor can be positioned below the parameter for channel 2 with  $\Rightarrow$ /CURSOR. The reproduce level can be set to the desired line level

by turning the SET/CUE wheel. Press STORE.

### 4.3.3 Azimuth alignment of the reproduce head

Spool calibration tape forward to the Azimuth Alignment Section. The level of this section is approximately 10 dB lower than in the level tone section. Connect millivoltmeter to channel 1.

Start recorder in PLAY mode.



Coarse adjustment:

While a recording with reference frequency is played, correct the azimuth of the reproduce head until the maximum output level is attained.

Fine-adjustment:

Align the line outputs of the two channels either

by connecting them to the inputs of a 2-channel oscilloscope while playing a recording with 8, 10 or 16 kHz and by further correcting with the azimuth alignment screw for minimum phase difference of the line output signals

connect them to the inputs of an AF millivoltmeter with summing facility while playing a recording with 8, 10 or 16 kHz and by further correcting with the azimuth alignment screw to maximum level of the sum of both line output signals.

#### Important:

Always align to maximum level first and then to minimum phase difference! If the inclination of the reproduce head is significantly modified, additional maxima, but with lower level, can occur. To make shure, check phase with a slightly different frequency.

#### Level check:

Rewind reference tape to the test section "LEVEL TONE" and start recorder in reproduce mode.

Check level of channels 1 and 2 and correct, if necessary.

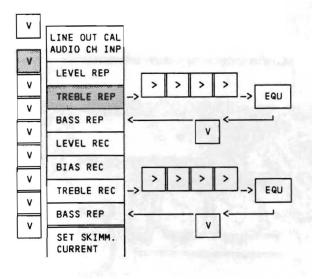
4.3.4 Reproduce frequency response alignment

|                                | TRB | REP  | 15.0<br>CH2 | NAB | В  |
|--------------------------------|-----|------|-------------|-----|----|
| Treble alignment TREBLE REPRO: | СН  | 1 31 | CH2         | 31  | dy |

Spool calibration tape forward to the "FREQUENCY RESPONSE 16 kHz" test section (applies to 30 ips; 14 kHz for 15 ips, 12.5 kHz for 7 1/2 ips). The level of this test section is approximately 20 dB (CCIR) lower than in the Reference Level Section.

Connect millivoltmeter to line output channel 1.

Paging to the TRB REP position is possible with the key  $\psi/\text{NEXT}$ .



Initially the cursor is positioned under the parameter for channel 1.

Start recorder in PLAY mode.

Align for optimum frequency response by turning the  $\,$  SET/ CUE wheel. Press STORE.

On stereo recorders switch the millivoltmeter to the line output channel 2. The cursor can be positioned below parameter 2 with >/Cursor.

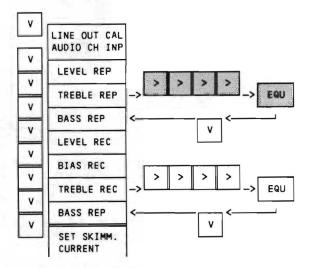
meter 2 with >/Cursor.
Align for optimum frequency response by turning the SET/
CUE wheel. Press STORE.

Changing the reproduce standard equalization EQU REPRO:

EQU REP 15.0 NAB B CH1 61 CH2 61

For special situations it is possible to modify the reproduce frequency response by slightly shifting the time constant for the reproduce standard equalization. If no change in the equalization is necessary, press  $\forall$ /NEXT for paging to BASS REPRO.

The reproduce standard equalization is changed as follows: Starting from the TRB REP position, cursor below the parameter for CH2, press ⇒/CURSOR four times. The service display indicates EQU REP.



The equalization time constant is set for both channels in common (both parameters modified at the same time). Start recorder in PLAY mode.

The time constant can be increased by turning the SET/CUE wheel clockwise, i.e. the transition frequency is shifted toward lower frequencies. Press STORE after the optimum frequency response has been found.

| STANDARD TIME | TRANSITION FREQU. | REPRODUCE  |
|---------------|-------------------|------------|
| CONSTANT [µs] | [kHz]             | HEX. VALUE |
| 120           | 1.326             | E5         |
| 90            | 1.768             | A3         |
| 70            | 2.273             | 87         |
| 50            | 3.150             | 61         |
| 35            | 4.547             | 44         |
| 17.5          | 9.094             | 26         |

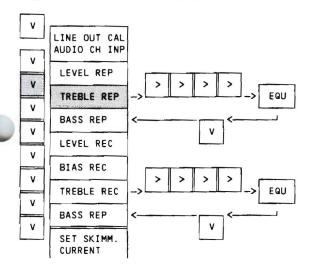
## Bass alignment BASS REPRO:

BAS REP 15.0 NAB CH1 6A CH2 6A

(For explanation, refer to 4.2.1, note 2).

Spool the calibration tape to the "FREQUENCY RESPONSE Spool the calibration tape to the "FREQUENCY RESPONSE 63 Hz" test section. The level of this section is approximately 10 dB lower than in the level tone section. Connect millivoltmeter to line output channel 1.

Page to BAS REP with the key \√NEXT.



Initially the cursor is positioned below the parameter for CH1.

Start recorder in PLAY mode.

Align for optimum frequency response by turning the SET/CUE wheel. Press STORE.

On stereo recorders, switch the millivoltmeter to the line output channel 2. Move channel 2 with ≯/CURSOR. Move the cursor to the parameter

Align for optimum frequency response by turning the SET/CUE wheel. Press STORE.

#### Note:

If mono calibration tapes are used for the reproduce alignment of stereo recorders, strong fringing effects can occur at low frequencies. To ensure that a linear reproduce frequency response is attained, the reproduce adjustment of the bass frequencies must either be repeated with tape present (after the record alignment) or if no record adjustments are planned, a calibration tape with correct track separation should be used!

## 4.3.5 Alignments for other tape speeds

The alignments for other tape speeds are basically performed in the same manner as outlined in Sections 4.3.2through 4.3.4:

Select desired speed

- Change over the equalization and tape type if necessary
- Mount corresponding calibration tape.

### Exceptions:

The alignment of the reproduce frequency response is made with different frequencies, depending on the tape speed:

|       | ADJUSTMENT FOR |            |  |  |  |  |
|-------|----------------|------------|--|--|--|--|
| [ips] | TREBLE REPRO   | BASS REPRO |  |  |  |  |
| 3.75  | 8              | 63         |  |  |  |  |
| 7.5   | 12,5           | 63         |  |  |  |  |
| 15    | 14             | 63         |  |  |  |  |
| 30    | 16             | 63         |  |  |  |  |

# RECORD ADJUSTMENTS

# Preparatory steps

Mount practically new unrecorded tape.

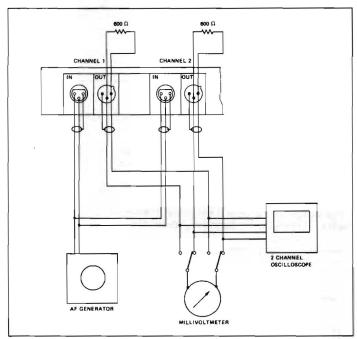


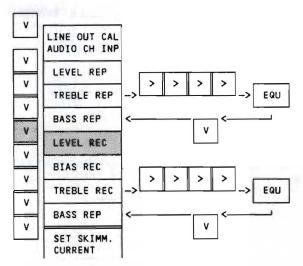
Fig. 4.4.1

Connect AF generator with 1 kHz and line level to the line input channel 1 (channels 1 + 2 on stereo models) and the millivoltmeter to the line output channel 1. A reference frequency of 700 Hz can be fed when aligning to NAB standards.

Switch recorder on and press the READY and REP keys of channels 1 and 2. Release all UNCAL buttons (calibrated line level).

Select preferred studio tape speed.

Page to the position LVL REC with the keys  $\psi/\text{NEXT}$ ,  $\Rightarrow/\text{CURSOR}$ ,  $\ll/\text{CURSOR}$ , and  $\uparrow/\text{LAST}$  (possibly with the aid of the status tree diagram, Section 2.6, where also a stepby-step programming example can be found).



Initially the cursor is positioned below the parameter for

Start recorder in PLAY mode.

The record level can be set to the desired line level by turning the SET/CUE wheel. Press STORE.

On stereo recorders switch the millivoltmeter to the line output channel 2. Position the cursor below the parameter for channel 2 with ≯/CURSOR. Set the desired line level by turning the SET/CUE wheel.

Press STORE.

# Azimuth alignment of the record head

If the bias has not be set yet, the parameters should be set to the same or similar values for both channels of two-channel or stereo recorders, refer to Section 4.4.1 (reason: the mechanical and the "electrical" head gap of the record head are not in the same position; their distance depends on the magnitude of the bias current. For this reason an azimuth correction must be made after the final bias alignment).

Set AF generator to 10 kHz and decrease level by 20 dB. Connect millivoltmeter to channel 1. Start recorder in PLAY mode.

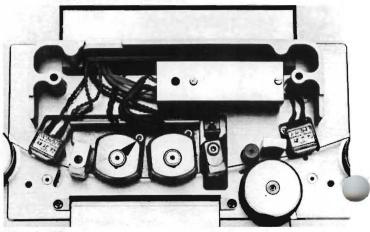


Fig. 4.4.2

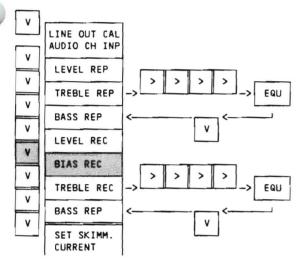
Correct the azimuth of the record head by means of the azimuth alignment screw until the highest output voltage and simultaneously the lowest level fluctuations are attained.

If significant corrections of the azimuth alignment have been made, repeat the record level prealignment (Section 4.4.2)!

4.4.4 Bias adjustment BIAS RECORD BIA REC 15.0 NAB B CH1 46 CH2 46

Set AF generator to 10 kHz and the level 20 dB below line level.

Connect millivoltmeter to the line output channel 1. Page to the position BIA REC by pressing ★/NEXT.



Initially the cursor is positioned below the parameter for channel 1.

Start unit in RECORD mode.

The bias current is set to zero by turning the SET/CUE wheel counterclockwise.

Turn the SET/CUE wheel clockwise in order to attain the maximum output voltage, write down the value. Continue to turn clockwise until the output voltage drops by Delta U. Delta U depends on the tape speed and formulation and can be determined from the BIAS table at the end of this Section.

Press STORE.

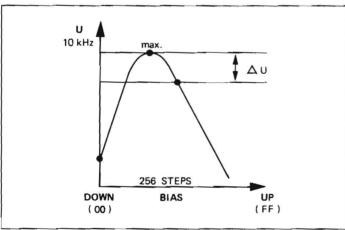


Fig. 4.4.3

On stereo recorders, switch the millivoltmeter to line output channel 2. Position the cursor below the parameter for channel 2 by pressing ≯/CURSOR. Adjust bias as for channel 1.
Press STORE.

4.4.5
Azimuth correction (for stereo and two-channel models)

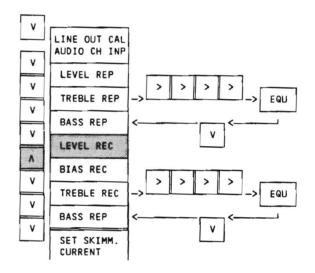
On stereo and two-channel models align for minimum phase difference of the output signals of channels 1 and 2 with the aid of an oscilloscope and by carefully turning the azimuth adjustment screw of the record head.

4.4.6
Record level adjustment LEVEL REC

LVL REC 15.0 NAB B CH1 30 CH2 30

Set AF generator to 1 kHz (700 Hz) and line level. Connect millivoltmeter to line output channel 1.

Page to the position LVL REC by pressing  $\uparrow$ /LAST.



Initially the cursor is positioned below the parameter for channel  $\boldsymbol{1}$ .

Start machine in RECORD mode.

Set the desired line level by turning the SET/CUE wheel. Press STORE.

On stereo recorders, connect the millivoltmeter to line output channel 2. Position the cursor below the parameter for channel 2 with  $\Rightarrow$ /CURSOR. The record level can be adjusted to the desired line level

The record level can be adjusted to the desired line level by turning the SET/CUE wheel.

Press STORE.

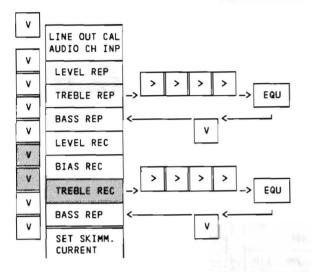
4.4.7 Record frequency response alignment

Set AF generator to line level - 20 dB. Connect millivoltmeter to line output channel 1.

Treble adjustment TREBLE RECORD:

TRB REC 15.0 NAB B CH1 54 CH2 54

Page to the position TRB REC by pressing ♥/NEXT twice.



Initially the cursor is positioned below the parameter for channel 1.

Start recorder in PLAY mode.
Align for optimum frequency response by turning the SET/

| TAPE S | PEED  | ADJUSTING FREQU. |
|--------|-------|------------------|
| [cm/s] | [ips] | [kHz]            |
| 9,5    | 3.75  | 8                |
| 19     | 7.5   | 10               |
| 38     | 15    | 12,5             |
| 76     | 30    | 16               |

Press STORE.

stereo recorders switch the millivoltmeter to line output channel 2. Position the cursor below the parameter for channel 2 by pressing ≯/CURSOR. Align for optimum treble frequency response by turning the SET/CUE wheel. Press STORE.

Changing the record standard equalization EQU RECORD

EQU REC 15.0 NAB CH1 99 CH2 99

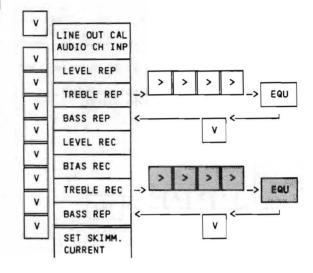
In special situations it is possible to correct the record frequency response by shifting the standard time constant for the record equalization.

If no correction is necessary, press \(\psi/NEXT\) to page to the

BASS REPRO adjustment.

Proceed as follows to change the record standard equalization:

Starting from the position TREBLE REC, cursor below parameter for channel 2, press ≯/CURSOR four times. service display indicates EQU REC. The



The equalization time constant is set for both channels in common (both parameters changed at the same time). Start unit in RECORD mode.

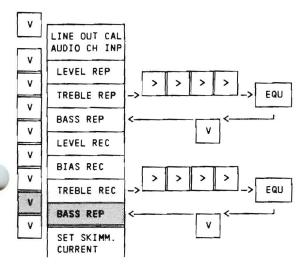
By turning the SET/CUE wheel clockwise, the time constant can be made smaller, i.e. the transition frequency is shifted toward higher frequencies. Press STORE after the optimum frequency response has been found.

| THEORETICAL STANDARD EQUALIZATION ADJUSTMENTS |                   |                      |  |  |  |  |
|---|-------------------|----------------------|--|--|--|--|
| STANDARD TIME<br>CONSTANT [µs]                | TRANSITION FREQU. | RECORD<br>HEX. VALUE |  |  |  |  |
| 120   | 1.326             | 0E                   |  |  |  |  |
| 90  | 1.768             | 4C                   |  |  |  |  |
| 70  | 2.273             | <b>7</b> 5           |  |  |  |  |
| 50  | 3.150             | 82                   |  |  |  |  |
| 35  | 4.547             | BA                   |  |  |  |  |
| 17.5  | 9.094             | DE                   |  |  |  |  |

Bass adjustment BASS REPRO (via tape):

BAS REP 15.0 NAB CH1 6A CH2 6A

Connect millivoltmeter to channel 1. Page to the BAS REP position with \/NEXT.



Initially the cursor is positioned below the parameter for CH1. Start recorder in PLAY mode.
Align for optimum frequency response (below approximately 200 Hz) by turning the SET/CUE wheel.

Press STORE

On stereo recorders, connect the millivoltmeter to the line output channel 2. Position the cursor below the parameter for channel two by pressing  $\Rightarrow$ /CURSOR. Align for optimum frequency response (below approximately 200 Hz) by turning the SET/CUE wheel. Press STORE.

4.4.8 Cross talk adjustment (only 2-channel and stereo models)

Connect AF generator (line level, 1 kHz) to the line input channel 1, and connect millivoltmeter to the line output 1, and connect millivoltmeter to the this 2... 2. Switch both channels to READY; start machine channel 2. RECORD mode. Adjust for minimum output voltage with the aid of the CROSSTALK potentiometer (preamplifier in headblock, R14, Fig. 4.4.4). Repeat the same measurement with swapped channels. If pronounced differences occur, an optimum value has to be found for both channels.

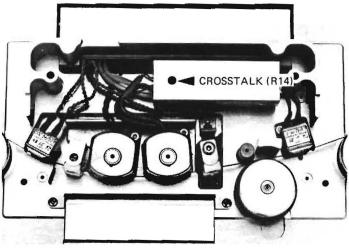


Fig. 4.4.4

## SYNC REPRODUCTION ADJUSTMENTS

Sync reproduction is not recommended for 3 3/4 ips. possible, however, if reduced reproduction quality can be accepted. All SYNC parameters are set to 00 for this tape speed in the factory.

Switch recorder off and wait 5 seconds

Set the jumper of the REPRODUCE AMPLIFIER to NARROW (or to WIDE if a wider frequency response is desired — however considerable cross talk from the recording channel into the SYNC reproduce channel must be expected in this case).

The SYNC reproduce adjustments are analogous to the repro-

- duce adjustments with the following exceptions:
   On the VU-meter select SYNC instead of REP (the service display indicates e.g. LVL SYN instead of LVL REP). The channel controls are now connected in parallel, even if they can normally be operated individually (function CH CONTR PAR/INDIV set to "INDIV").

  No soundheads need to be aligned.

Level adjustment LEVEL SYNC:

LVL SYN 15.0 NAB В CH1 62 CH2 62

Treble adjustment TREBLE SYNC:

TRB SYN 15.0 NAB CH1 50 CH2 50

frequencies with jumper in NARROW position: Alignment 8 kHz for for 7 1/2 ips, 10 kHz for higher tape speeds.

Altering the reproduce standard equalization EQU SYNC:

EQU SYN 15.0 NAB CH1 61 CH2 61

■ The following table shows the theoretical equalization

| THEORETICAL STANDARD EQUALIZATION ADJUSTMENTS |                   |                          |  |  |  |  |
|---|-------------------|--------------------------|--|--|--|--|
| STANDARD TIME<br>CONSTANT [µs]                | TRANSITION FREQU. | SYNC REPRO<br>HEX. VALUE |  |  |  |  |
| 120   | 1.326             | E5                       |  |  |  |  |
| 90  | 1.768             | A3                       |  |  |  |  |
| 70  | 2.273             | 87                       |  |  |  |  |
| 50  | 3.150             | 61                       |  |  |  |  |
| 35  | 4.547             | 44                       |  |  |  |  |
| 17.5  | 9.094             | 26                       |  |  |  |  |

Bass adjustment BASS SYNC:

BAS SYN 15.0 NAB CH1 88 CH2 88

tape recorders are normally calibrated with track reference tapes. Frequency response errors are caused by fringing effects in stereo and two-channel models at low frequencies.

this reason it is recommended to adjust the SYNC produce frequency response for low frequencies via tape i.e. the sync reproduce frequency response adjustment should be repeated with a test tape prepared by the user if no reference tape with the correct track separation is available (approximately 3 minutes each: 1 kHz (NAB 700 Hz), 10 kHz (8 kHz for 7 1/2 ips), 50 Hz).

# TIME CODE REPRODUCTION

No electrical adjustments are basically necessary for time code reproduction.

The adjustments are limited to the mechanical alignment of Left-hand and right-hand code soundhead and are only necessary after the code soundheads have been replaced. A soundhead alignment gauge A80/A820 1/4" with reference gauge A80/A800/A820 are available (Order Nos. 10.010.001.02 and 10.010.001.01). Because the width of the code track is very small (0.38 mm), accurate alignment of the heads is absolutely essential.

### 4.6.1 Preparatory steps

Check the heads for contamination and clean them it mecessary. The head height is to be aligned to maximum reproduce level by means of a reference tape (in preparation). The CODE READ/WRITE amplifier must be mounted on board (Order No. 1.820,799.00) for this purpose.

#### CAUTION

Switch the recorder off and wait at least 5 seconds before inserting or unplugging the circuit boards.

Time code reproduction is not possible as long as the CODE READ/WRITE UNIT is mounted on the extender board!

The reproduce level is measured (preferably with an oscilloscope) before the limiter on test point TP; the ground loscope) before the limiter on test point TP; the ground terminal of the scope probe must be connected to plug No. ground 21 on the extender board.

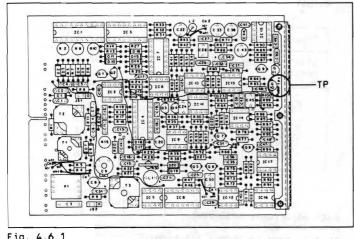


Fig. 4.6.1

Mount time code reference tape, recording inhibited (SAFE). Start recorder in PLAY mode.

# Checking the code soundhead height

THIS PROCEDURE IS ONLY NECESSARY AFTER THE SOUNDHEADS HAVE BEEN REPLACED!

■ Visually check the code soundhead height, then measure the voltage on the measuring point TP.

- Alternately press with your finger from the top and the bottom lightly against the tape edge on the left of the left-hand code soundhead (audio erase head). The height is correct if the voltage becomes smaller while the tape is being pressed in either direction.
  ■ By pressing TRANS and PLAY for as long as TRANS is held,
- start recorder in reverse play mode and measure the voltage on test point TP. Alternately press with your finger lightly from the top and the bottom against the tape edge on the right of the right-hand code soundhead (combination head). The height is correct if the voltage becomes smaller while the tape is being pressed in either direction either direction.

Should the measured voltage rise when the tape edge is pressed, the height of the heads must be corrected:

- the left-hand code soundhead with the aid of spacer shims (0.1 mm, Order No. 1.062.210.08);
- on the right-hand code soundhead by adjusting the swivel plate.

### 4.6.3 Tape guidance

The right-hand time code soundhead (combination head) must be perpendicular to the plane of the tape path. Lateral or forward/backward tilt detected after the height alignment has been performed must be corrected by adjusting the swivel plate with the aid of the soundhead alignment gauge A80/A820 1/4" with reference gauge A80/A800/A820 are available (Order Nos. 10.010.001.02 and 10.010.001.01). Recheck the height alignment afterwards!

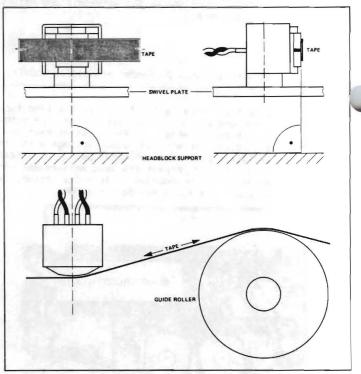


Fig. 4.6.2

# TIME CODE RECORDING

# Preparatory steps

The record alignments can be executed with a time code signal as well as with a square-wave signal. The adjustment with a square-wave signal has the advantage of a stationary pattern on the oscilloscope screen. For that purpose, however, the TIME CODE DELAY UNIT must be unplugged and the jumper JS2 on the TIME CODE READ/WRITE UNIT must be plugged to position "BYPASS".

■ Mount the CODE READ/WRITE PCB on the extender board (Order No. 1.820.799.00).

CAUTION: Switch recorder off and wait for at least 5 seconds before unplugging or inserting any PCB!
Time code reproduction is not possible during spooling mode as long as the CODE READ/WRITE UNIT is mounted on the extender board!

Switch recorder on.

■ Set trigger level for time code line input:

Connect square-wave generator, frequency 1 kHz, time code generator to the time code line input. output voltage of the generator should be at the l - Connect The Lowest value at which the line level input and the CODE LEVEL indicator lamp are still supposed to work (factory setting: 0.5 Vpp, minimum value approx. 150 mVpp).

- Turn trimmer potentiometer R15 on the TIME CODE READ/ WRITE UNIT clockwise until the CODE LEVEL lamp just turns on.

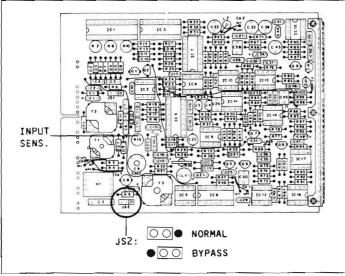


Fig. 4.7.1

■ Check code soundheads for contamination and clean them, if necessary.

Adjusting the head height of the right-hand code soundhead (combination head)

THIS PROCEDURE IS ONLY NECESSARY AFTER THE TIME CODE HEADS HAVE BEEN REPLACED!

- Mount practically new, unrecorded tape.
   Set bias trimmer C9 to the center position.
   Turn record level trimmers R2 (7 1/2 ips), R8 (15 ips)and R10 (30 ips) clockwise by 1/3 of the angle of rotation (approximately 90°).
- READ/WRITE UNIT to position "BYPASS" (see Fig. 4.7.1).

  Select tape speed 15 ips.

  Connect square—user are CODE

- Connect square-wave generator 2 Vpp, 1 kHz to all three
- line inputs and make a recording with a duration of approximately 10 to 20 seconds.

  Apply iron oxide spray (MAGNETIC IRON OXIDE by AEROSOLS INTERNATIONAL LTD., Order No. 10.555.001.00) to a few centimeters of the recorded tape, coated side facing upward.
- After the suspension has dried, measure the track symmetry with the aid of a measuring magnifier (Order No. 10.258.006.00).

Align the head height if the deviation is greater than  $\pm 0.05$  mm. Repeat recording and measurement until track symmetry is achieved.

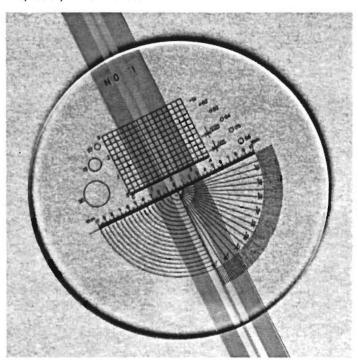


Fig. 4.7.2

■ It is necessary to check the tape guidance after the head height has been corrected (4.6.3).

#### 4.7.3 Preparatory steps

Press time code SAFE button (audio recording inhibited =

- Connect oscilloscope to test point TP. The ground terminal of the scope probe must be connected to plug No. 21 on the extender board.
- Mount time code reference tape (in preparation), spool forward to the second test section (time code, 729 nWb/m pp), start recorder in PLAY mode, and measure code, the signal magnitude (amplitude, peak-to-peak) with an oscilloscope on test point TP. Note the measured value. (Approximate value: 180 - 300 mVpp at 15 ips)

If no time code reference tape is available this measurement can be made on a make-shift basis with the aid of a full-track audio test tape. Procedure:

Connect oscilloscope to the test point TP via an RC element as illustrated in Fig. 4.7.3.

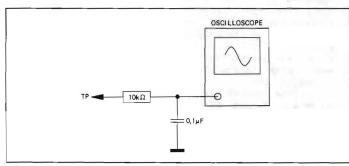


Fig. 4.7.3

- Play level tone section, 1 kHz, measure and write down the measured value (amplitude, peak-to-peak). Multiply measured value with factor k=1.3 if a reference tape with a flux of 200 nWb/m is
- used,
- k = 0.81 if a reference tape with a flux of 320 nWb/m is used.
- to obtain the time code reproduce level (peak-to-peak) for a tape flux of 729 nWb/m pp.
- Write down computed value.

## 4.7.4 Bias adjustment

- Mount unrecorded, new quality tape.
   Set bias trimmer C9 to minimum capacitance.
   Turn record level trimmers R2 (7 1/2 ips), R8 (15 ips) and R10 (30 ips) clockwise by 1/3 of the angle of rotation (companients), O01) tion (approximately 90°).
- Press time code READY.

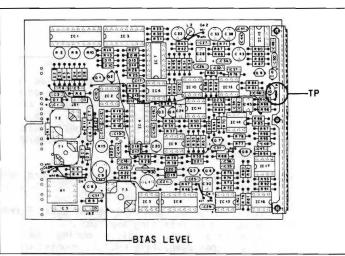


Fig. 4.7.4

- Connect square-wave generator (1 kHz; CODE DELAY UNIT removed, jumper JS2 on CODE READ/WRITE UNIT in position "BYPASS") or time code generator with approximately 2 Vpp to the time code line input.

   Start machine in RECORD mode. During recording increase the capacitance of CO stan by stan in intervals of 10
- the capacitance of C9 step by step in intervals of seconds until the rotor is plunged in approximately 90 recording with different bias values is produced this manner.

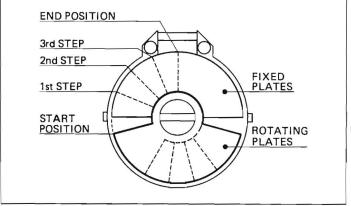


Fig. 4.7.5

- Rewind to the start of the recording
- Connect oscilloscope to test point TP. The ground terminal of the scope probe must be connected to plug No.
- on the extender board. Start recorder in PLAY mode.
- During the playback note the position at which the output amplitude is the highest.
- C9 to this position.
- Restart the machine in RECORD mode, adjust C9 in small increments near the previously found position.
   Determine the optimum position of C9 (maximum amplitude)
- and steepest signal slope) through repetitive tests.

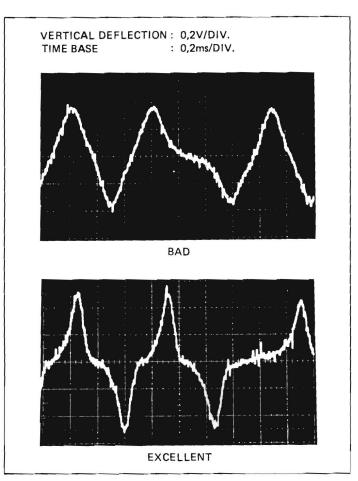


Fig. 4.7.6

## 4.7.5 Record level adjustment

The record level is adjusted with the trimmer potentiometers R2 (7 1/2 ips), R8 (15 ips) and R10 (30 ips) in such a way that the reproduce level determined and noted according to Section 4.7.3 becomes available on test point

# Procedure (for each tape speed):

- Mount unrecorded, new quality tape.
- Connect oscilloscope to test point TP. The ground terminal of the scope probe must be connected to plug No. 21 on the extender board.
- Start machine in RECORD mode and record a square-wave signal (1 kHz, 2 Vpp; CODE DELAY UNIT removed, jumper JSZ on CODE READ/WRITE UNIT in position "BYPASS"), or a time code signal for 20 seconds. Rewind to the start of the recording, switch recorder to
- PLAY mode. The voltage on test point TP should be the same as the value determined according to 4.7.3. Repeat this procedure several times until this value is
- attained.

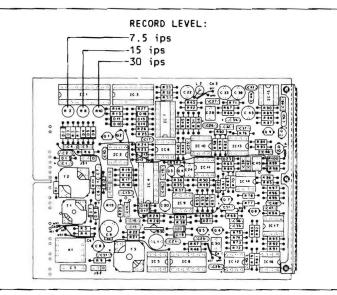


Fig. 4.7.7

Checking the head gap position, reproduce

- Insert CODE DELAY UNIT.
- Connect time code line output and line output of one of the two audio channels to the MASTER or the SLAVE input, resp., of a STUDER TLS4000 synchronizer (or a time code reader with offset indication facility).
- Mount time code reference tape (in preparation), spool to the first section (full-track time code) and start recorder in PLAY mode, tape speed 15 ips.

  Measure the offset between the audio channel and the
- time code channel.
- time code channel. The offset should not exceed 4 ms (for 15 ips), 2 ms (for 30 ips), or 8 ms (for 7.5 ips), resp. Should the offset be greater than these values, it can be de-
- (for 30 ips), or 8 ms (for 7.5 ips), resp. Should the offset be greater than these values, it can be decreased by turning the left-hand combination head. After this adjustment has been made it is necessary to check the erase depth of the audio channels! A compromise between maximum erase efficiency and minimum time code offset may have to be made.

If no equipment for measuring the offset is available, it can be assumed that the offset is less than 4 ms (for 15 ips), 2 ms (for 30 ips), or 8 ms (for 7.5 ips), resp. if the erase efficiency of the audio channels is adequate and if the head gaps of the record and reproduce head have been adjusted correctly.

# Checking the head gap position, via tape

- Connect time code generator in parallel to an audio channel and the time code channel. Make a recording with
- channel and the time code channel. Make a recording with a duration of approximately one minute. Rewind to the start of the recording and measure the offset between the audio channel and the time code channel with the same equipment as in 4.7.6. The offset should not exceed 4 ms (for 15 ips), 2 ms (for 30 ips), or 8 ms (for 7.5 ips), resp. Should the offset be larger, it can be decreased by turning the right-hand combination head right-hand combination head.

## IMPORTANT!

After the right-hand combination head has been corrected (time code record head) a new recording must be made for checking the head gap position!

The tape must touch the head face approximately symmetrically, it should not be drawn across one of the edges!

## 4.7.8

Checking the time code reading performance during fast

- Insert CODE DELAY UNIT or, if not available, set jumper JS2 on CODE READ/WRITE UNIT to position "BYPASS".

   Insert CODE READ WRITE UNIT without extender board.

   Connect time code generator to the TC line input.

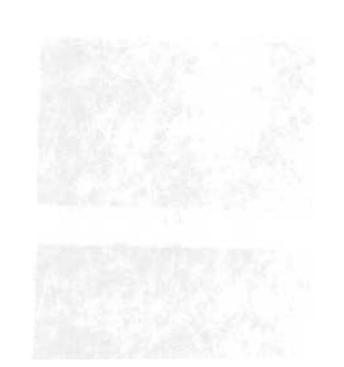
   Select tape speed 7.5 ips.

   Make a recording for approx. 10 minutes.

   Connect time code reader to the TC line output.

   Switch recorder to maximum spooling speed. The recorded time code must be perfectly read in either direction.

Important: In spooling mode the CODE DELAY UNIT is automatically bypassed, i.e. the offset inevitably amounts more than the specified value (max. 8 ms for 7.5 ips nominal speed), no matter if the CODE DELAY UNIT is inserted



# 4.8 EXTERNAL STORAGE OF THE AUDIO PARAMETERS

For copying the audio and tape tension parameters of the RAM to an external storage medium the tape recorder must be equipped with the serial interface 1.810.751. There exist two possibilities: either by means of a suited Personal Computer directly to a floppy disk, or to tape (preferably via the tape recorder itself.

With a special command the external data can be compared with the ones stored in the recorder's RAM in order to check the correct data transmission.

In the following the expressions SAVE (for external storage of the recorder's RAM data), VERIFY (for comparing the externally stored data with those in the recorder's RAM), and LOAD (for writing the externally stored data into the recorder's RAM) will be used.

# 4.8.1 Storing the parameters on tape (SAVE)

If the recorder receives the command "SAVE" the microprocessor transmits all the stored audio and tape tension parameters in serial format to the pins 4 and 6 of the SMPTE/EBU BUS / RS232 connector. These pins are balanced and floating, the output level is approximately 30 Vpp. In order to reduce the output level of the current source to about 2 Vpp, a 47  $\Omega$  load resistor must be connected between the pins 4 and 6.

Three complete copies of the parameters are transmitted each time for safety reasons, however, one correct transmission is sufficient when reloading. The complete save process takes approximately 30 seconds.

#### Procedure:

Connect the input of the tape recorder to the SMPTE/EBU BUS / RS232 connector:

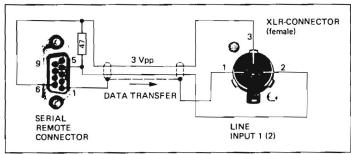


Fig. 4.8.1

- Select tape speed.
- Mount tape of sufficient length (recording time at least 30 seconds)
- Adjust recording level: Press UNCAL button of the RECORD LEVEL control. Adjust the PPM or VU-meter indication to zero during the first data save process. If necessary, mark the position of the RECORD LEVEL control with the marker ring or write it down. (After that, repeat the data save process with the correct level).
- Press READY button of the desired recording channel.
- Bring the programming enable switch [28] to its counterclockwise end position (with Allen key No. 2.5).
- Press ♥/NEXT several times until the service display

shows the following menu:

PARAM BACKUP ON TAPE ↑\_♥ VERIFY SAVE LOAD

The cursor is between the two arrows in a safe position.

- Press ⇒/CURSOR two times, the cursor stands now below the word "SAVE".
- Start recorder with PLAY+REC in record mode.
  - Press STORE, the service display shows:

DATA TRANSMISSION IN PROGRESS - PLS WAIT

The data are written to the tape.

After a successful data transmission, the following message appears:

DATA TRANSMISSION COMPLETED

If data transmission errors have occurred (e.g. caused by a transient system voltage failure), the following message appears:

DATA TRANSMISSION FAILED

■ Pressing ↑/NEXT or \\\ \psi/LAST switches over in both cases to the following menu:

PARAM BACKUP ON TAPE ↑\_♥ VERIFY SAVE LOAD

■ If required, the procedure can be repeated. If not, page back to the starting position by pressing ↑/LAST several times.

# 4.8.2 Comparing the data on tape (VERIFY)

If the tape recorder receives the command "VERIFY" the microprocessor receives all audio and tape tension parameters in serial format on the pins 4 and 6 of the SMPTE/EBU BUS / RS232 connector. These pins are balanced and floating, the input level should be about 2 Vpp.

## Procedure:

Connect the tape recorder's output to the SMPTE/EBU BUS/ RS232 connector:

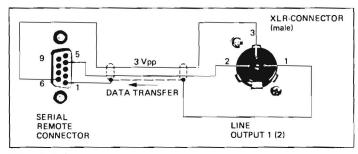


Fig. 4.8.2

- the same tape speed as was used for the SAVE ■ Select procedure.
- Mount tape with the recorded parameters. Adjust reproduce level: Press UNCAL Press UNCAL button of REP/SYNC LEVEL control. Adjust the PPM or VU-meter indication to zero during the first data verify process. If necessary, mark the position of the REP/SYNC LEVEL control with the marker ring or write it down. (After that, repeat the verify process with the correct level).
- Bring the programming enable switch [28] to its counter-clockwise end position (with Allen key No. 2.5). Press #/NEXT several times until the service display
- Press shows the following menu:

PARAM BACKUP ON TAPE ↑\_ VERIFY SAVE LOAD

- The cursor is between the two arrows in a safe position. ■ Press ⇒/CURS word "VERIFY" →/CURSOR once, the cursor stands now below the
- Press STORE, the service display shows:

WAITING FOR DATA INP PLS SEND DATA

Switch recorder with PLAY to reproduce mode. As a valid data are recognized, the service display As soon as cates:

> VERIFYING DATA PLEASE WAIT

- After successful data comparison, the following message appears:

VERIFICATION SUCCES-FULLY COMPLETED

- If the data are not identical, the following message appears:

VERIFICATION FAILED PLEASE REPEAT

- The following message appears:after about 15 seconds, if no reproduction took place, or
  - about 30 seconds, if no valid data could be after found:

NO DATA FOUND

■ In all cases, pressing ↑/LAST switches back to the following menu:

PARAM BACKUP ON TAPE ↑\_ VERIFY SAVE LOAD

If required, the procedure can be repeated. If not, page back to the starting position by pressing †/LAST several times.

4.8.3

Loading the data from tape (LOAD)

If the recorder receives the command "LOAD" the microprocessor receives all audio and tape tension parameters in serial format and loads them into the RAM. The same cable can be used as for the VERIFY procedure. receives all audio and tape tension parameters Generally, the first of the three identical data blocks is sufficient for the LOAD procedure. If errors should occur

LOAD. the microprocessor can read from one of the two following data blocks.

#### Procedure:

■ Analogous to 4.8.2, until the following menu is indicat-

PARAM BACKUP ON TAPE ↑ VERIFY SAVE LOAD

- Press >/CURSOR three times, the cursor stands now below the word "LOAD".
- Press STORE, the service display shows:

WAITING FOR DATA PLS SEND DATA

■ Switch recorder with PLAY to reproduce mode. As so valid data are recognized, the service display As soon as cates:

DATA LOADING IN PROGRESS - PLS WAIT

- After successful data loading, the following message appears:

DATA LOADING COMPLETED

 If the microprocessor detects a data error (e.g. caused by a transient system voltage failure or contaminated soundheads), the following message appears:

DATA LOADING FAILED DEFAULT PARAM LOADED

Repeat the procedure, or, if requested, go on working with the standard parameters.

- The following message appears:
   after about 15 seconds, it if no reproduction took place, or
- about 30 seconds, if no valid data could be after found:

NO DATA FOUND

The previous audio and tape tension parameters are still present in the RAM

■ In all cases, pressing ↑/LAST switches back to the following menu:

PARAM BACKUP ON TAPE ↑\_ VERIFY SAVE LOAD

■ If required, the procedure can be repeated. If not, page back to the starting position by pressing 1/LAST several times.

#### 4.8.4

Storing the parameters with Personal Computer (SAVE)

If the recorder receives the command "SAVE" the microproparameters in serial format to the SMPTE/EBU BUS / RS232 connector. Three complete copies of the parameters are transmitted each time for safety reasons

#### Procedure:

- Putting the Personal Computer into operation and connecting it to the connector SMPTE/EBU BUS / RS232:

  As described in 2.8.5. In addition, the software handshake mode (X ON/X OFF protocol) must be switched
- Bring the programming enable switch [28] to its counter-clockwise end position (with Allen key No. 2.5).
   Press \*/NEXT several times until the service display
- shows the following menu:

PARAM BACKUP RS 232 ↑\_\ VERIFY SAVE LOAD

The cursor is between the two arrows in a safe position.  $\blacksquare$  Press  $\Rightarrow$ /CURSOR two times, the cursor stands now below the

- word "SAVE"
- Press STORE, the service display shows:

DATA TRANSMISSION IN PROGRESS - PLS WAIT

The data are transmitted to the computer.

a successful data transmission, the following message appears:

DATA TRANSMISSION COMPLETED

The transmitted data can be stored on the floppy disk. ■ If data transmission errors have occurred (e.g. caused a transient system voltage failure), the following message appears:

DATA TRANSMISSION FAILED

■ Pressing ↑/NEXT or \\*/LAST switches over in both cases to the following menu:

PARAM BACKUP RS 232 ↑\_\ VERIFY SAVE LOAD

■ If required, the procedure can be repeated. If not, page back to the starting position by pressing †/LAST several times.

# 4.8.5

Verification of the data in the Personal Computer (VERIFY)

If the tape recorder receives the command "VERIFY" the microprocessor receives all audio and tape tension paramein serial format via the SMPTE/EBU BUS / RS232 connector.

#### Procedure:

- Putting the Personal Computer into operation and connecting it to the SMPTE/EBU BUS / RS232 connector: As described in 2.8.5. In addition, the software handshake mode (X ON/X OFF protocol) must be switched
- Bring the programming enable switch [28] to its counterend position (with Allen key No. 2.5).
- Press V/NEXT several times until the service display shows the following menu:

PARAM BACKUP RS 232 ↑\_₩ VERIFY SAVE LOAD

The cursor is between the two arrows in a safe position.

- Press >/CURSOR once, the cursor stands now below the word "VERIFY".
- Press STORE, the service display shows:

WAITING FOR DATA INP PLS SEND DATA

■ Activate data transmission from the Personal Computer to the tape recorder. As soon as valid data are recognized, the service display indicates:

> VERIFYING DATA PLEASE WAIT

After successful data comparison, the following message appears:

VERIFICATION SUCCES-

- If the data are not identical, the following message

VERIFICATION FAILED PLEASE REPEAT

- The following message appears:
- after about 15 seconds, if no data transmission took place, or
- about 30 seconds, if no valid data could be after found:

NO DATA FOUND

■ In all cases, pressing ↑/LAST switches back to the following menu:

PARAM BACKUP RS 232 ↑ ¥ VERIFY SAVE LOAD

■ If required, the procedure can be repeated. If not, page back to the starting position by pressing \( \text{\$1/LAST} \) several

# 4.8.6

Loading the data from the Personal Computer (LOAD)

the recorder receives the command "LOAD" the microproreceives all audio and tape tension parameters

serial format an loads them into the RAM.

Generally, the first of the three identical data blocks is sufficient for the LOAD procedure. If errors should occur during LOAD, the microprocessor can read from one of the two following data blocks.

#### Procedure:

■ Analogous to 4.8.5, until the following menu is indicat-

PARAM BACKUP RS 232 1\_♥ VERIFY SAVE LOAD

- Press >/CURSOR three times, the cursor stands now below the word "LOAD".
- Press STORE, the service display shows:

WAITING FOR DATA PLS SEND DATA

 Activate data transmission from the Personal Computer to the tape recorder. As soon as valid data are recognized, the service display indicates:

DATA LOADING IN PROGRESS - PLS WAIT

- After successful data loading, the following message appears:

DATA LOADING COMPLETED

- If the microprocessor detects a data error (e.g. caused by a transient system voltage failure), the following message appears:

DATA LOADING FAILED DEFAULT PARAM LOADED

Repeat the procedure, or, if requested, go on working with the standard parameters.

The following message appears:

- after about 15 seconds, if no data transmission took
- place, or after about 30 seconds, if no valid data could be

NO DATA FOUND

The previous audio and tape tension parameters are still present in the RAM.

■ In all cases, pressing ↑/LAST switches back to the following menu:

PARAM BACKUP RS 232 ↑\_\* VERIFY SAVE LOAD

 If required, the procedure can be repeated. If not, page back to the starting position by pressing †/LAST several times.

# PROGRAMMING THE OPERATING PARAMETERS

#### 4.9.1 Program switches LINE AMPLIFIER

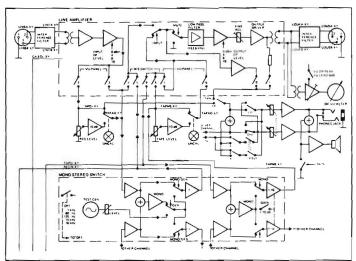


Fig. 4.9.1

JSO, JS1: Connection of internal monitor and phones output:

Connected to output amplifier:

JSO = 0

JS1 = 1

Connected before muting circuit:

JSO = 1 JS1 = 0

Monitor speaker and headphones switched off permanently: JSO = 0

JS1 = 0

JS2...JS9: VU-meter panel, mono/stereo switch:

| EQUIPMENT                         | JSZ | JS3 | JS4 | JS5 | 186 | JS7 | JS8 | JS9 |
|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| NO VU PANEL,<br>NO M/S SWITCH     | 1** | 1   | 1   | 1   | 0   | 1   | 0   | 1   |
| WITH VU PANEL,<br>NO M/S SWITCH   | 1   | 0   | 1   | 1   | 1   | 0   | 1   | 1   |
| NO VU PANEL,<br>WITH M/S SWITCH   | 1** | 1   | 0*  | 1*  | 0   | 1   | 1   | 0   |
| WITH VU PANEL,<br>WITH M/S SWITCH | 1   | 0   | 0*  | 1*  | 1   | 0   | 0   | 0   |

- indicated switch position means that the output The RECIN of the mono/stereo switch will be heard if the output selector is in the INP position. If the input signal is to be tapped before the mono/stereo switch, it is necessary to set JS4 to 1 and JS5 to 0.

  \*\* JS2 must be 0 for recorders without VU panel and without monitor speaker.
- without monitor speaker.

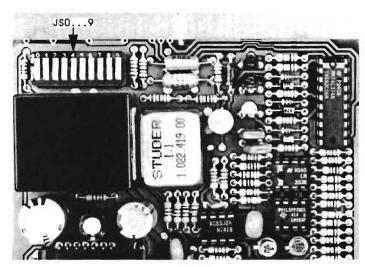


Fig. 4.9.2

#### 4.9.2 Jumper REPRODUCE AMPLIFIER

The SYNC reproduce frequency range can be switched from 12 kHz ("N = narrow) to 20 kHz ("W" = wide) by means of jumper.

## Note

Significant record—to-sync channel  $% \left( 1\right) =\left( 1\right) +\left( 1\right)$ 

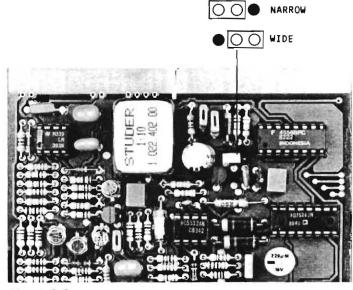


Fig. 4.9.3

#### 4.9.3 Jumper VU-meter amplifier

The display characteristic (VU-meter or peak program me ter, PPM) of each of the level indicators can be selected by means of a jumper on the back of the VU-meter panel. VU indication according to IEC recommendation 268, part 10, Section 4; peak program indication (PPM) according to IEC recommendation 268, part 10, Section 3 (except 24, 1, scale division).

Remove VU-meters by unfastening the 4 mounting screws.

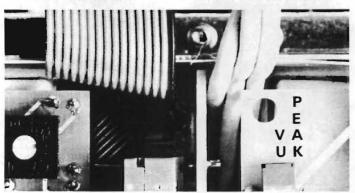


Fig. 4.9.4

4.9.4 Jumpers and potentiometers MONO/STEREO SWITCH and/or  $\,$  TEST GENERATOR  $\,$ 

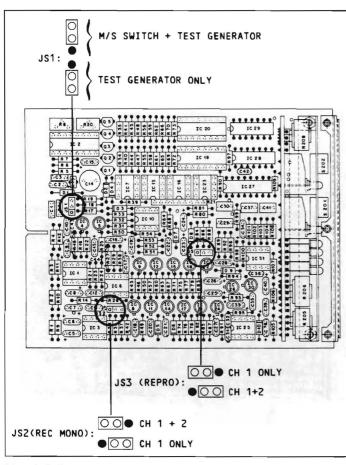


Fig. 4.9.5

#### Jumpers:

If the mono/stereo switch is retrofitted, the setting of the program switches on the LINE AMPLIFIER must be altered correspondingly (refer to 4.9.1). In addition the function 031 "STEREO/MONO" is to be assigned to a key selected by the user (as shown in example 4, Section 2.6.4), the key label is to be changed, and the status indication label is to be replaced by the one with complete labeling. Selfadhesive labels and plug-in LEDs are bypacked in the accessories of the recorder. accessories of the recorder.

In machines for which a test generator is desired but the mono/stereo switch is not needed or unusable (e.g. full-track versions), the electronics of the mono/stereo switch is required, however. In this case the signal TA-ACTMO must be pulled to ground with jumper JS1 (jumper in position "TEST GENERATOR ONLY"); as a result operation without mono/stereo switch is simulated so that the mono/stereo switch cannot be accessed by the software.

The operating mode for RECORD can be selected with iumper JSZ:

Mono signal either only from input channel 1, or aggregate signal of inputs channel 1+2.

The operating mode for PLAY can be selected with jumper

The aggregate signal of channel 1+2 can either be connected only to the output channel 1 or to both outputs channel 1 and 2.

#### Potentiometers:

(Prerequisite: recorder calibrated according to Section 4.2).

- Alignment of LEVEL MONO, reproduce:
  - Mount test tape.
  - MONO mode (simultaneously press STOP and STE-REO-MONO).
  - Set level for the desired magnetization with the potentiometer "LEVEL MONO REPROD"
  - Select setting that is 1.1 dB below the MONO level in order to compensate the guard track loss (not taken into consideration in the factory setting).
- Alignment of LEVEL MONO, record:
- Feed nominal level 1 kHz.
   Select MONO mode (simultaneously press STOP and STE-REO-MONO).
- Set nominal level on the output by means of potentio-meter "LEVEL MONO RECORD".
- Alignment TEST GENERATOR:
- Switch recorder to INPUT.
   Press "REF" button on MONO/STEREO SWITCH circuit board; set "REF LEVEL" potentiometer to reference level of D dB-VU.

#### 4.9.5 Jumpers TIME CODE READ/WRITE UNIT

The CODE LEVEL LED can be disabled with jumper JS1.

code channel is operated without CODE DELAY UNIT 1.820.722, the delay input and output must be interconnected. This can be done through the serial interface, if available, or with jumper JS2 on the CODE READ/WRITE amazon code neldy UNIT must be inplifier. In the second case no CODE DELAY UNIT must be installed!

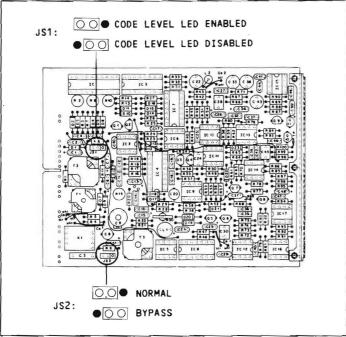


Fig. 4.9.6

#### 4.9.6 Jumpers MONITOR AMPLIFIER

- MONITOR AMPLIFIER PCB (refer to Fig. 4.9.7): Jumper JS1 in position "S": both channels are connected to the headphones socket
- Jumper JS1 in position "M": only channel 1 is connected to channel 1 ("tip") of the headphones socket; channel 2 ("ring") of the headphones socket is not

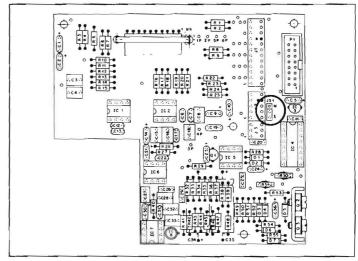


Fig. 4.9.7

- SOURCE SELECTOR PCB (refer to Fig. 4.9.8):
  Jumpers JS1 and JS2 must either be both in position "A"
  or "C"!
- Jumpers JS1 and JS2 in position "A": when swi "1+2/CUE" is pressed, the aggregate signal of b audio channels is taken to the monitor speaker or the headphones socket respectively.
- Jumpers JS1 and JS2 in position "C": if switch "1+2/CUE" is pressed, the time code signal is taken to the monitor speaker or to the headphones socket respectively.

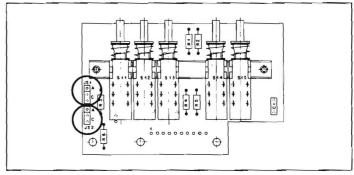


Fig. 4.9.8

4.10 Bias adjustment parameters ("Delta U" values)

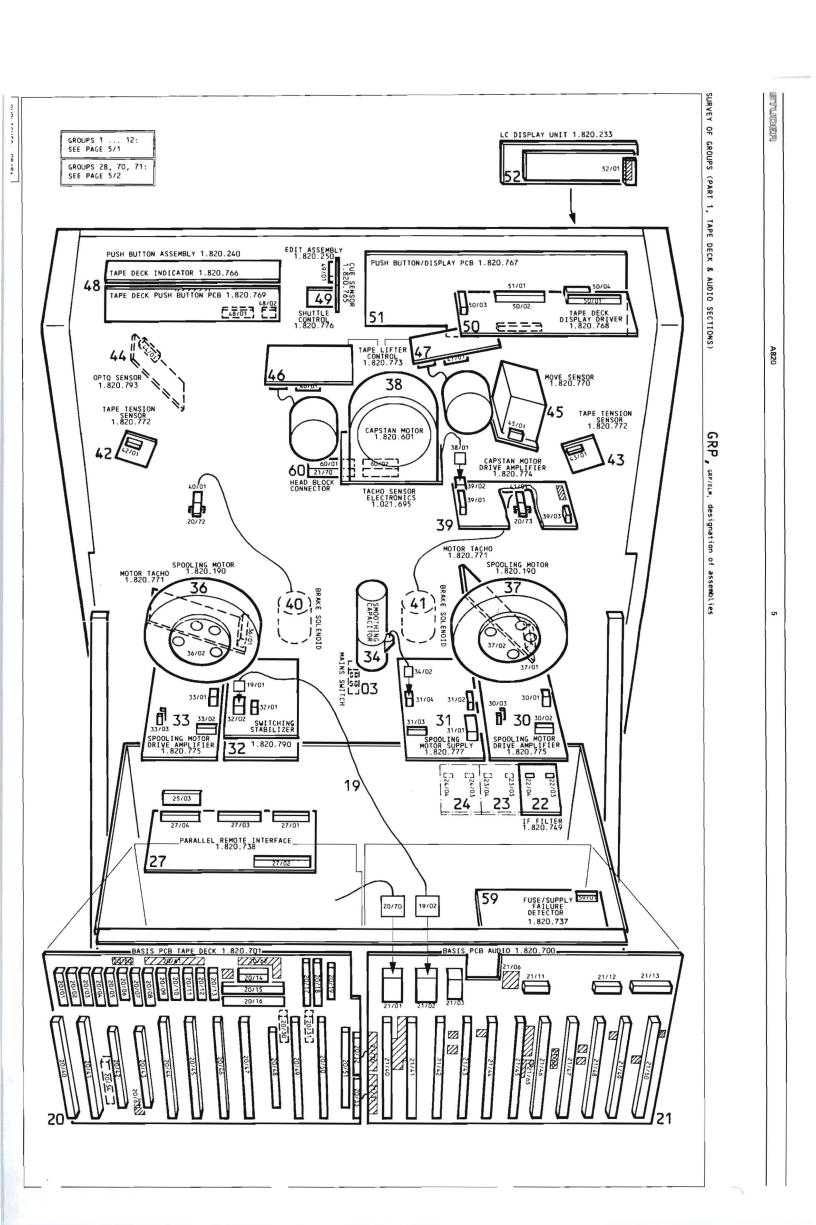
| Bandsorte              |                      | Δυ  | [dB] |     |
|------------------------|----------------------|-----|------|-----|
| Type of tape           | 9,5 cm/s<br>3.75 ips |     |      |     |
| Agfa PEM 468           | 6                    | 6   | 3.5  | 1.5 |
| Agfa PEM 469           | 7                    | 7   | 5    | 2   |
| Agfa PER 525           | 6                    | 6   | 3    | 1   |
| Agfa PER 528           | 6                    | 6   | 3.5  | 1.5 |
| Ampex 406              | 6                    | 5   | 3    | 1.5 |
| Ampex 456 GRAND MASTER | 5                    | 6.5 | 3.5  | 1.5 |
| BASF LGR 30P           | 6                    | 6   | 4    | 1.5 |
| BASF LGR 50P           | 6                    | 6   | 4    | 1.5 |
| BASF SPR 50LH/50LHL    | 6                    | 5.5 | 3.5  | 1.5 |
| BASE STUDIO MASTER 910 | 5                    | 6   | 4.5  | 1.5 |
| EMI 816/817            | 6                    | 6.5 | 4    | 1.5 |
| PYRAL CJ90             | 6                    | 6.5 | 3.5  | 1.5 |
| SCOTCH (3M) 206        | 5.5                  | 5.5 | 3    | 1.5 |
| SCOTCH (3M) 226        | 6                    | 6   | 3.5  | 1.5 |
| SCOTCH (3M) 250        | 5                    | 6   | 3.5  | 1   |
| SCOTCH (3M) 256        | 6                    | 6.5 | 3.5  | 1   |
| SCOTCH (3M) 263        | 6                    | 6   | 3    | 1   |
|                        |                      |     |      |     |

STUDER A820

#### 5 GENERAL DIAGRAMS

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                 HEAD ASSEMBLY IDENTIFIER PCB
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1 820 795 00
                 - SOURCE SELECTOR PCB (PART OF 1.820.235/.580)
1.820.796.00
                                                                                  7/51
1.820.797.00/.81 - LC DISPLAY CONNECTOR PCB (PART OF 1.820.233)
                                                                                  6/37
                 - MONITOR AMPLIFIER PCB "ESE" (PART OF 1.820.235/.580)
1.820.860.00
                                                                                  7/51
                TIME COUNTER CONTROL PCB (OPTION)
                                                                                  5/131
1 820 861 00
                - LINE OUTPUT AMPLIFIER PCB "ESE" (PART OF 1.820.715)
1.820.862.00
```



22/03 to 21/45

22/04 to 21/45

| GRP/  | ELP | 1 to   | GRP/ELM | (see | page | left) |
|-------|-----|--------|---------|------|------|-------|
| 03    | to  | 04/01  |         |      |      |       |
| 19/01 | to  | 32/02  |         |      |      |       |
| 10.00 | 20  | 24 /02 |         |      |      |       |

23/03 to 21/50 19/02 to 21/02 23/04 to 21/50 20/01 to 33/02 24/03 to 21/40 20/02 to 30/02 24/04 to 21/40 20/03 to 39/01 20/04 Spare 25/01 to Option 20/05 to 31/03 25/02 to Option 20/06 to 44/01 20/07 to 46/01 25/03 to 27/04 20/08 to 47/01 25/04 to Dotion 25/05 to Option 20/09 to 36/01 20/10 to 37/01

27/01 to Ontion 20/11 to 45/01 27/02 to 20/16 20/12 to 42/01 20/13 to 43/01 27/03 to Option 20/14 to 59/01 27/04 to 25/03 20/15 to 50/01

20/16 to 27/02 20/17 to 60/02 28/06 to 28/05 30/01 to 31/01 20/18 to 70/01 and 33/01 20/19 to 28/02 or 71/02 30/02 to 20/02 30/03 to 37/02 1/30 to Option \_0/31 to Option 20/32 to 21/30 31/01 to 30/01 and 33/01 20/33 to 21/31 31/02 to 08/05

20/34 to Option 20/40 to SPOOLING MOTOR DRIVER 1.820.759 31/03 to 20/05 31/04 to 34 20/41 to CAPSTAN CONTROL UNIT 1.820.764 20/42 to CAPSTAN INTERFACE 1.820.727 32/01 to 12/05 20/43 to TAPE DECK PERIPHERY CONTROLLER 1.820.762 32/02 to 19/01 20/44 to TAPE DECK COUNTER/TIMER 1.820.761 20/45 to SPOOLING MOTOR CONTROLLER 1.820.760

33/01 to 30/01 20/46 to MP UNIT TAPE DECK CONTROL 1.820.785 20/47 to TAPE DECK SERIAL INTERFACE 1.820.763 and 31/01 33/02 to 20/01 33/03 to 36/02 20/48 to MASTER SERIAL INTERFACE 1.820.753 20/49 to MP UNIT MASTER 1.820.786 20/50 to "SERIAL REMOTE CONTROLLER" 1.810.751 34/02 to 31/04 20/51 to MASTER PERIPHERY CONTROLLER 1.820.728

36/01 to 20/09 20/60 to 20/70 36/02 to 33/03 20/61 to 20/70 20/62 to 20/70 37/01 to 20/10 and 39/03 20/63 to 20/72 37/02 to 30/03 and 20/73

38/01 to 39/02 20/70 to 20/60,61,62 20/72 to 20/63 39/01 to 20/03 20/73 to 20/63 21/01 to 20/60.61 39/02 to 38/01 21/02 to 19/02 39/03 to 20/62 21/03

Spare 40/01 to 20/72 21/06 1/11 to 70/09 41/01 to 20/73 1/12 to 70/11 21/13 to 28/01 or 70/12

42/01 to 20/12 43/01 to 20/13 or 71/01 21/30 to 20/32 44/01 to 20/06 21/31 to 20/33 21/40 to TIME CODE READ/WRITE UNIT 1.820.721 45/01 to 20/11 and 21/70, 24/03,04

21/41 to TIME CODE DELAY UNIT 1.820.722 46/01 to 20/07 21/42 to HF DRIVER 1.820.713 and 21/70 47/01 to 20/08 21/43 to RECORD AMPLIFIER 1.820.712

and 21/70 21/44 to REPRODUCE AMPLIFIER 1.820.710 48/01 to 50/03 and 21/70
21/45 to LINE AMPLIFIER 1.820.714 or to LINE AMPLIFIER 1.820.715 48/02 to 49/01 49/01 to 48/02

and 22/03,04 21/46 to MONO/STEREO SWITCH 1.820.720 or 50/01 to 20/15 to MONO/STEREO SWITCH W. TEST GEN. 1.820.724 50/02 to 51/01 50/03 to 48/01 21/47 to HF DRIVER 1.820.713 50/04 to 52/01 and 21/70

21/48 to RECORD AMPLIFIER 1.820.712 51/01 to 50/02 and 21/70 21/49 to REPRODUCE AMPLIFIER 1.820.710 52/01 to 50/04 and 21/70

21/50 to LINE AMPLIFIER 1.820.714 or to LINE AMPLIFIER 1.820.715 59/01 to 20/14 and 23/03,04 60/01 via 21/70 to: 21/65 to 21/70 21/40,43,44, 1/66 to 21/70

60/02 to 20/17

GRP/FLM to GRP/ELM (see page right)

01 to 04/01 02/03 to Ground

04/01 to 03,01, 06.05 05/01 to 04/01, to 06/01 05/02 to 04/01.

06/01 to 04,05. 07,08,09

07/01 to 06 07/02 to 06 07/03 to 06

08/01 to 06/01 08/02 to 06/01 08/03 to 08/05 08/04 to 08/05 08/05 to 31/02

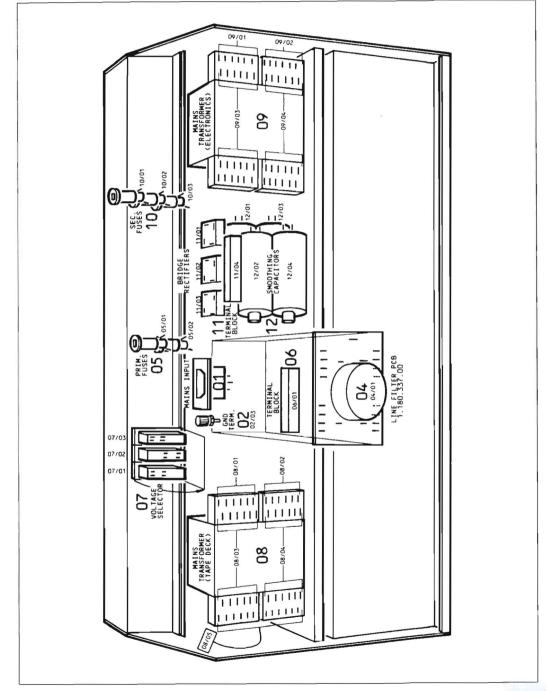
09/01 to 06/01 09/02 to 06/01 09/03 to 11/03,04 09/04 to 11/03,04

10/01 to 11/04 10/02 to 11/02,04 10/03 to 09/03, 11/03

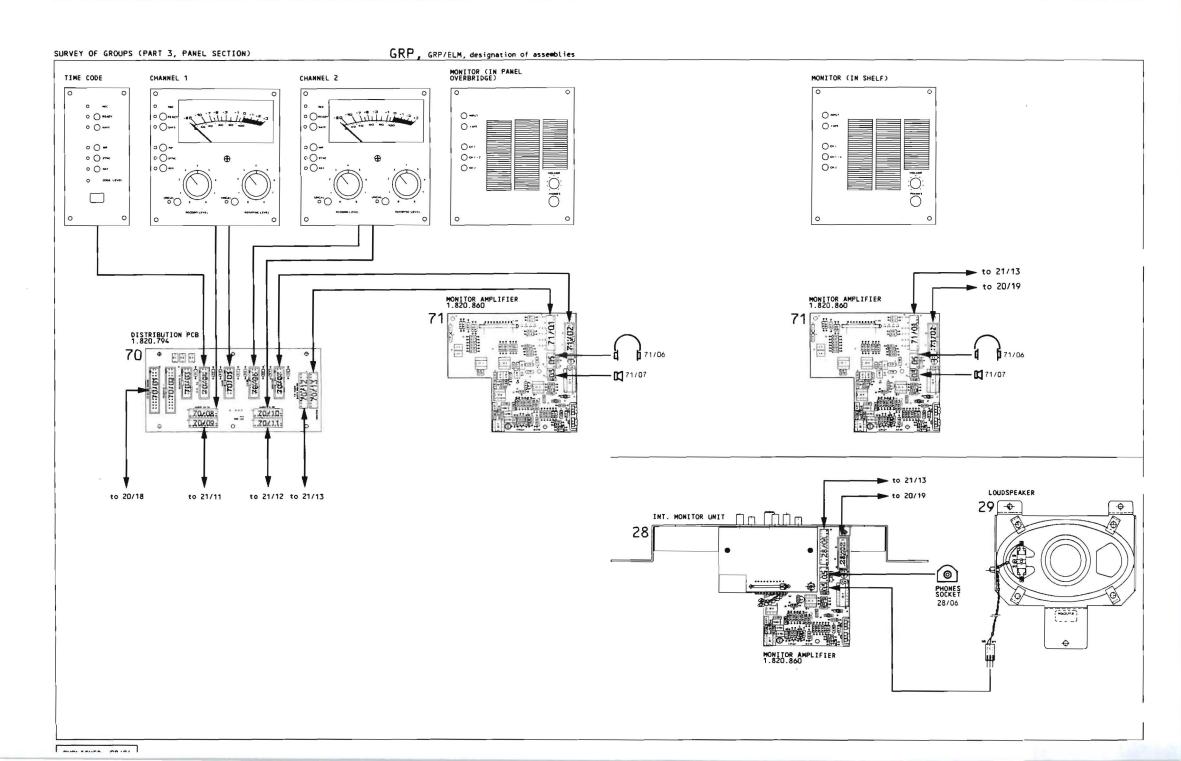
11/01 to 11/04, 12/01,02 11/02 to 11/04, 12/03 11/03 to 11/04, 12/04 11/04 to 09,10,11

12/01 to 11/01 12/02 to 11/01 12/03 to 11/02 12/04 to 11/03 SURVEY OF GROUPS (PART 2, POWER SUPPLY SECTION)

GRP, GRP/ELM, designation of assemblies



/70 to 60/01



#### 5.1 WIRING

Wiring diagrams for equipment with complex electronic circuitry are difficult to follow and can lead to misinter-pretations. Our documentation is, therefore, based on computer-generated wiring lists. They give complete information on each electrical connection within the equipment.

To make the documentation more understandable, the power supply, the controls, the tape transport control, and the audio section habe been split into groups (GRP) and the groups into elements (ELM) and connecting points (PNT).

The signals are referred to by names that have been constructed from various abbreviations and from which the corresponding function can be recognized.

#### 5.1.1 Groups

The electrical hardware of the A820 tape recorder is subdivided into groups (GRP01...GRP71). These groups are interconnected by cables and connectors that are identified with the corresponding group number. The group arrangement and the main interconnections are listed in the survey of groups (fold-out pages on the left) and the block diagram (at the beginning of the diagrams section).

#### 5.1.2 Elements, Points

Groups that comprise multiple PCBs or other elements are subdivided into elements (ELM). The connecting points (PNT) are located ont the elements.

5.1.3 Main connection types:

| Тур           | Description   | STUDER N                            |
|---------------|---|-------------------------------------|
|               | Connector, D-type, crimp:   |                                     |
| Α             | Contact pin, for thin stranded wire   | 54.02.04                            |
| AA            | Contact pin, for heavy stranded wire  | 54.02.04                            |
| В             | Contact socket, for thin stranded wire  | 54.02.04                            |
| BB            | Contact socket, for heavy stranded wire   | 54.02.04                            |
|               | CAC   |                                     |
| С             | CIS connector:  | E/ 01 0//                           |
| D             | Contact socket<br>Contact pin   | 54.01.04                            |
| U             | tontact pin   | 34.01.04                            |
|               | MOLEX connector   |                                     |
| F             | Contact socket, for thin stranded wire  | 54.02.04                            |
| FF            | Contact socket, for heavy stranded wire   | 54.02.04                            |
| G             | Solder hook   | 29.21.600                           |
| Н             | Wire/stranded wire, tinned (6 mm)   |                                     |
| I             |   | 5/ 02 11                            |
| ,             | Connector, D-type, crimp, contact pin   | 54.02.11                            |
|               | Flat connector, AMP FASTON, crimp,<br>D.8 x 6.3 mm:   |                                     |
| JM            | Contact, female, for thin stranded wire   | 54.02.033                           |
| J             | Contact, female, for heavy stranded wire  | 54.02.033                           |
|               | Contact, fem., for very heavy stranded w.   | 54.02.03                            |
| _             |   |                                     |
| K             | Wire/stranded wire, stripped 8 mm,<br>tinned 1 mm   |                                     |
| $\overline{}$ |   |                                     |
| L             | Wire/stranded wire, tinned 4 mm   |                                     |
| м             | MOLEX contact pin, for thin stranded wire   | 54.02.041                           |
|               | MOLEX contact pin, for heavy stranded w.  | 54.02.041                           |
| MY            |   | 54.02.034                           |
| N             | CIS connector, contact pin  | 54.01.022                           |
|               |   |                                     |
| 0             | Contact spring to EURO card conn. strip   | 54.01.037                           |
|               | PCB contact strip:  |                                     |
| Р             | Contact strip, for thin stranded wire   | 54.06.451                           |
| PP            |   | 54.06.451                           |
| Q             | Socket strip, contact socket  | 54.01.045                           |
|               | Connector, D-type, crimp, contact socket  | 54.02.111                           |
| R             |   |                                     |
| S             | Wire/stranded wire, stripped 4 mm/tinned  |                                     |
| T             | TERMI-POINT connector on WIRE WRAP post   |                                     |
| υ             | Detent-spring solder contact, crimp   | 54.03.020                           |
|               | Detent-spring solder contact, crimp  Detent-spring solder contact, crimp  | 54.34.600                           |
|               |   |                                     |
| ٧             | Contact, female, for heavy stranded wire  | 54.02.043                           |
| ٧٧            | Contact, female, for thin stranded wire   | 54.02.047                           |
| æ             | Wrapped   |                                     |
| $\dashv$      | Flat connector AMD EACTON chime   |                                     |
| ι             | Flat connector AMP FASTON, crimp,<br>0.5 x 2.8 mm:  |                                     |
| 1             | Contact, female, for thin stranded wire   | 54.02.032                           |
| y             |   |                                     |
| x<br>xx       | Contact, female, for heavy stranded wire  | 34.02.032                           |
|               | Contact, female, for heavy stranded wire  | 54.02.032                           |
|               | Contact, female, for heavy stranded wire Flat connector AMP FASTON, crimp,  | 54.02.032                           |
| xx            | Contact, female, for heavy stranded wire  Flat connector AMP FASTON, crimp,  0.8 x 2.8 mm:  |                                     |
| XX<br>Y       | Contact, female, for heavy stranded wire  Flat connector AMP FASTON, crimp,  0.8 x 2.8 mm:  Contact, female, for thin stranded wire | 54.02.032                           |
| XX            | Contact, female, for heavy stranded wire  Flat connector AMP FASTON, crimp,  0.8 x 2.8 mm:  | 54.02.032<br>54.02.032<br>54.02.032 |

# 5.1.4 Wire tabeting, color scheme

The most important leads of the wiring are labeled. Three numbers can be found on the end of each wire: these speci-fy the corresponding group, the element, and the con-

- The flat cable connectors carry labels indicating:

  Numbers of group and element where the connector itself is to be inserted.
- Either the name of the group where the connector at the opposite end of the cable is to be connected, or
   The name of the group where the connector iself is to
  - be inserted.

## Examples:

GRP39, MOLEX socket CAPSTAN MOTOR DRIVE AMPLIFIER, GRP39, MOLEX socket ELMO3. Wire colors at the matching connector (GRP20, ELM71) yel and red, wires printed 20-71-1 and 20-71-6. That means that the red wire is connected to pin No. 6 of the MOLEX connector.

The other end of the red wire is marked 20-62-6, i.e. it is connected to the point No. 6 of the wire field ELM62 on group BASIS PCB TAPE DECK, GRP20.

The flat cable connector plugged to BASIS PCB TAPE DECK GRP2O ELM14 (connection to the FUSE/SUPPLY FAILURE DETECTOR PCB) is labeled as follows:

GR.20 EL.14 TO FUSE/SUPP FAILURE DET.

The connector at the other end of the flat cable is marked with the following tag:

GR.59 EL.01 FUSE/SUPPLY FAILURE DET.

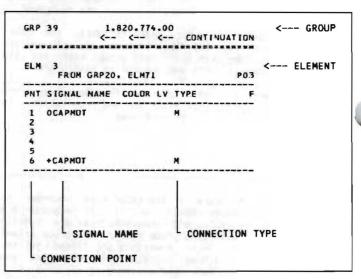
# Color scheme

| 0 | black     | (blk) |
|---|-----------|-------|
| 1 | brown     | (brn) |
| 2 | red       | (red) |
| 3 | orange    | (org) |
| 4 | yellow    | (yel) |
| 5 | green     | (grn) |
| 6 | blue      | (blu) |
| 7 | violet    | (vio) |
| 8 | grey      | (gry) |
| 9 | white     | (wht) |
| - | uncolored | (unc) |

#### 5.1.5 Explanations to LOCATION PIN LIST

This list is arranged by group number. If the group number or group designation is known, further information can be found by consulting this list. If only the signal name is known, consult the SIGNAL WIRE LIST (refer to 5.1.6).

Example: (refer to LOCATION PIN LIST p. 36)



Group: GRP39, 1.820.774.00 CAPSTAN MOTOR DRIVE AMPLIFIER

ELMO3 (MOLEX socket for power supply)

Connection type:
M (MOLEX contact pin for thin stranded wire); the socket is soldered directly to the PCB.

Connection points: PNT01 and PNT06

Signal names: OCAPMOT, +CAPMOT

Colors:

5.1.6 Explanations to SIGNAL WIRE LIST

This list is arranged in alphabetic order by signal name (the signal names of the neutrals and the supply voltages are located at the top of the list). If the signal name is known, further information can be obtained by consulting this list. If only the group designation or the group number are known, consult the LOCATION PIN LIST (refer to 5.1.5).

The signal names are listed in the first column (SIGNAL NAME). The wire color can be found in the second column (COLOR). The fourth column specifies groups, elements, and connecting points on which the signal concerned is available (GRP ELM PNT). This column is arranged in numerical order by group number, it does not give any information on the way of the signal through the recorder.

Example (refer to SIGNAL WIRE LIST p. 58)

| SIGNAL NAME | COLOR | MI | ASY GR | P EL | PRT | SLV | TYPE | DESCRIPTION OF ELEMENT      |      | REMARK | ELEMENT NR. |
|-------------|-------|----|--------|------|-----|-----|------|-----------------------------|------|--------|-------------|
| +CAPMGT     | 2     |    | 11     | 3    | 3   |     | L    | RECTIFIER                   | 0203 |        | 70.01.0231  |
|             | 2     |    | 12     | 4    | 1   |     | L    | CAPACITER                   | C04  |        | 59-26-7103  |
|             | 2     |    | 12     | 5    | 7   |     | H    | CONNECTOR TO GRP32. ELMO1   | PO 1 |        |             |
|             | 2     |    | 19     | 1    | 24  |     | F    | FROM GRP32. ELMO2           | J01  |        |             |
|             | 2     |    | 19     | 2    | 24  |     | M    | TO GRP21. ELMO2             | PO1  |        |             |
|             |       |    | 20     | 14   | 1   |     |      | FUSE FAILURE DETECTOR       | P14  |        |             |
|             |       |    | 20     | 14   | 2   |     |      | FUSE FAILURE DETECTOR       | P14  |        |             |
|             | 2     |    | 20     | 62   | 6   |     | Ł    | WIRE FIELD                  |      |        |             |
|             | 2     |    | 20     | 62   | 7   |     | L    | WIRE FIELD                  |      |        |             |
|             | 2     |    | 20     | 70   | 24  |     | F    | FROM GRP21, ELMO1           | J13  |        |             |
|             | 2     |    | 20     | 71   | 6   |     | F    | TO CAPSTAN MOTOR DRIVE AMP. |      |        |             |
|             |       |    | 21     | 1    | 24  |     | м    | TO GRP20. ELM70             | POI  |        |             |
|             |       |    | 21     | 2    | 24  |     | F    | FROM GRP19. ELMO2           | J01  |        |             |
|             |       |    | 32     | 1    | 7   |     | F    | INPUT FROM GRP12. ELMO5     | J01  |        |             |
|             |       |    | 32     | 2    | 24  |     | H    | OUTPUT                      | PO1  |        |             |
|             |       |    | 39     | 3    | 6   |     | м    | FRCM GRP20. ELM71           | P03  |        |             |
|             |       |    | 59     | 1    | 1   |     |      | FROM GRP20. ELM14           | POI  |        |             |
|             |       |    | 59     | 1    | 2   |     |      | FROM GRP20. ELM14           | POI  |        |             |

Signal name: +CAPMOT

Color: 2 (red) or none (flat cable)

Connection type:
M (MOLEX contact pin for thin stranded wire), or
F (MOLEX contact socket for thin stranded wire, or
L (soldered directly to a PCB)

Part of the signal path:

| GRP         | ELM | PNT  |   |
|-------------|-----|------|---|
| 11          | 03  | 03   | Rectifier bridge, "+" connection point, sol-  |
| 12          | 04  | 01   | dered. From here, a red wire leads to the Smooting capacitor, "+" connection point, |
| 12          | 05  | 07   | soldered. In addition, a<br>Wire harness with MOLEX connector<br>leads on to the    |
| 32          | 01  | 07   | MOLEX socket on the SWITCHING STABILIZER. The signal is looped through to the       |
| 32          | 02  | 24   | MOLEX plug on the SWITCHING STABILIZER, there the                                   |
| 19          | 01  | 24   | Wire harness with MOLEX socket is inserted.   |
| 19          | 02  |      | MOLEX plug at the other end of the wire   |
| 1           |     |      | harness is connected to   |
| 21          | 02  | 24   | MOLEX socket on the BASIS PCB AUDIO.  |
|             |     |      | Here, the signal is looped through to the   |
| 21          | 01  | 24   | MOLEX plug on the BASIS PCB AUDIO,  |
|             |     |      | where the   |
| 20          | 70  | 24   | Wire harness with MOLEX socket is plugged   |
|             |     |      | in. The other end of the wire harness is soldered to the                            |
| 20          | 62  | nA.  | Wire field on the BASIS PCB TAPE DECK,  |
| -0          | اء  | - 00 | the signal is looped through to the   |
| <b>*</b> 20 | 62  | 07   | Wire field on the BASIS PCB TAPE DECK.  |
|             |     |      | At the other end of the wire harness that   |
| 1           |     |      | is soldered here to the PCB there is a  |
| 20          | 71  | 06   | MOLEX socket,   |
| 1           |     |      | plugged to the  |
| 39          | 03  | 06   | MOLEX socket on the CAPSTAN MOTOR DRIVE<br>AMPLIFIER                                |

<sup>\*</sup> Here the signal is branched out. This is shown by the group number appearing more than two times in the SIGNAL WIRE LIST.

PART NUMBER: 1-820-090-00 + S T U D E R A B 2 O + T A P E D E C K A A U D I O + INDEX: 00

PAGE 1 DF 109

DATE OF ORIGIN: 83/02/23 OATE OF PROC. : 86/05/14

GROUP NOOE = # INTER GROUP NODF = # DIRECT WIRE TO # = C WIRING NOT COMPUTED = #

S U M M A R Y

ASSEMBLYS 0
GROUPS 50
ELEMENTS 205
PINS (TOTAL) 3196
MULTIPLE PINS 0
CODING KEYS 44
SIGNALS 555

( UNUSEO PINS 312 )

ODING KEYS 44
IGNALS 555 ( UNUSEO SIGNALS 45 )

RECORDS READ 3507

GPTIONS SPECIFIED : LOCLIS, SIGLIS, ALLCOL, WIRALL

CPTIONS USED : LOCLIS, SIGLIS, ALLCOL, WIRALL

====>> NC PUNCH GENERATED <<====

THE LINE AMPLIFIER WITH TRAFO 1.820.714.00/81 MAY BE REPLACED BY THE LINE AMPLIFIER TRAFOLESS 1.820.715.00.

THE MONO STERED SWITCH 1.820.720.00 MAY BE REPLACED BY THE MONO STERED SWITCH WITH TEST GENERATOR 1.820.724.00.

DESCRIPTION

POWER INPUT
EARTH CONNECTORS
POWER SWITCH
LIME FILTER
FUSES (LIME)
DISTRIBUTOR
VOLTAGE SELECTOR
MAIN TRANSFORMER (SPOOLING MOTORS)
MAIN TRANSFORMER (SPOOLING MOTORS)
MAIN TRANSFORMER
FUSES (SECONDARY)
RECTIFIERS
CAPACITORS
SUPPLY CABLE. SPOOLING MOTORS
SUPPLY CABLE. ELECTRONICS
BASIS BOARO
TAPE OECK
BASIS BOARO
AUDIO. 2 CH
INTERFERENCE FILTER, CH 02
INTERFERENCE FILTER, THME CODE
REMOTE CONTROL PANEL
SERIAL REMOTE INTERFACE
MONITOR CONTROL UNIT
MONITOR CONTROL UNIT
MONITOR CONTROL UNIT
MONITOR STABILIZER
SPOOLING MOTOR DRIVE AMPLIFIER RIGHT
SPOOLING MOTOR SUPPLY
SMITCHING STABILIZER
SPOOLING MOTOR DRIVE AMPLIFIER LEFT
CAPACITOR (BELONGS TO GRP31)
TORQUE MOTOR, LEFT
TORQUE MOTOR, LEFT
TORQUE MOTOR, LEFT
TORQUE MOTOR RIGHT
CAPSTAN MOTOR CRIVE AMPLIFIER
BRAKE ASSEMBLY, LEFT
BRAKE ASSEMBLY, LEFT
BRAKE ASSEMBLY, LEFT
TAPE TENSION SENSOR, RIGHT
OPTO SENSOR
MOWE SENSOR
TAPE LIFTER CONTROL, RIGHT
PUSHBUTTON ASSEMBLY
TAPE DECK DISPLAY DRIVER
COMMAND UNIT
LCD DISPLAY UNIT
TUSE/SUPPLY FAILURE DETECTOR
HEAD BLOCK ASSEMBLY, 2 CH, TIME CODE
DISTRIBUTED IN 50 GRP TOTAL: UNUSED PINS USED PINS TOT.PINS MULT.PINS CDO.KEYS ASY GRP PART NUMBER DESCRIPTION 2 3 54-04-0111 000 15 4 12 44 32 6 32 18 36 48 1.820.592.00 1.820.591.00 1.820.701.00 1.820.700.00 1.820.749.00 1.820.749.00 1.820.749.00 963 573 12 12 12 72 32 315 34 0 27 46 34 27 11 11 15 30 2 1.820.7729.00
1.820.738.00
1.820.234.00
1.820.2715.00
1.820.775.00
1.820.775.00
59.26.6223
1.820.190.00
1.021.6955.00
1.820.774.00
1.820.774.00
1.820.772.00
1.820.772.00
1.820.772.00
1.820.773.00
1.820.773.00
1.820.773.00
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1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00
1.820.773.00 DISTRIBUTED IN 50 GRP TOTAL : 2884 3196 312

| ****************************           |                  |                                   |
|--|------------------|-----------------------------------|
|  | ION PIN LIST     | * 86/05/14 * 11:48 * PAGF 4       |
|  |                  |                                   |
| • 1.820.090.00 • STUDER A 8            |                  | • 83/02/23 - 00 ·                 |
| ****************************           |                  | ********************************* |
|  |                  |                                   |
| GRP 1 54.04.0111                       | GRP 2            | GRP 3 55-12-0001                  |
| POMER INPUT                            | EARTH CONNECTORS | POWER SWITCH                      |
|  | EMIN CONNCCIONS  | FUNCA SECTOR                      |
| ###################################### |                  |                                   |

|    | POWER INPUT       | 54.04.011<br>******* | 1    |     | EARTH CONNECTORS |                 |                   |        |  |  |  |
|----|-------------------|----------------------|------|-----|------------------|-----------------|-------------------|--------|--|--|--|
|    | 1<br>POWER CONNEC | TOR                  |      | P01 | ELM              | 1<br>EARTH CONT | ACT               |        |  |  |  |
| NT | SIGNAL NAME       | COLOR LV             | TYPE | F   | PNT              | SIGNAL NAM      | IE COLOR L        | V TYPE |  |  |  |
| 2  | LINE1<br>LINE2    | 1<br>6<br>5-4        | 1    |     | 1                | GNO             | 5-4               | J      |  |  |  |
|    | GND               |                      |      |     | ELM              | 2<br>EARTH CONT | ACT               |        |  |  |  |
|    |                   |                      |      |     | PNT              | SIGNAL NAM      | E COLOR L         | V TYPE |  |  |  |
|    |                   |                      |      |     | 1                | GND             | 4                 | J      |  |  |  |
|    |                   |                      |      |     | ELM              | 3<br>EARTH CONT | 1.010.001.<br>ACT | 53     |  |  |  |
|    |                   |                      |      |     | PNT              | SIGNAL NAM      | E COLOR L         | V TYPE |  |  |  |

| P P  | L<br>OWER SWITCH |               |      |   |
|------|------------------|---------------|------|---|
| NT 5 | IGNAL NAME       | COLOR LV      | TYPF | F |
| ì L  | INFL             | - <del></del> | J    |   |
| 2 L  | INE2             | 6             | J    |   |
| 3 S  | -LINF1           | 1             | J    |   |
| 4 5  | -LINE2           | 6             | J    |   |

| •••                  | 1.                                | 820.090.0 | O * STUDE | R A E20 | * TAF | PE DECK & AUG       | 10    | *******  | ***** |                | /02/23 - 00<br><               | ······································ | - CONT IN | ON TAU |
|----------------------|-----------------------------------|-----------|-----------|---------|-------|---------------------|-------|----------|-------|----------------|--------------------------------|--|-----------|--------|
|                      | GRP 4 1.180.337.00<br>LINE FILTER |           |           |         |       | 5<br>FUSES (LINE)   |       |          |       | GRP            | 6<br>DISTRIBUTOR               |  |           |        |
| ELM 1<br>LINE FILTER |                                   |           |           |         | ELM   | 1<br>FUSE HOLDER.   |       | 106      | F01   | ELM            | 1<br>DISTRIBUTOR               |  |           |        |
| PNT                  | SIGNAL NAME                       | COLOR LV  | TYPE      | F       | PNT   | SIGNAL NAME         | COLOR | LV TYPE  | F     |                | SIGNAL NAME                    | COLOR LV                               | TYPE      | F      |
| 1 2                  | S-LINE1<br>S-LINE1                | 1         | Ľ         |         |       | SF-LINE1<br>PRIMV-2 | 1     | t        |       | 1 A<br>18      | PRIMV-2<br>PRIMV-2             | 1                                      | ĸ         |        |
|                      | LINE1                             | 1         | Ť         |         | ELM   | 2<br>FUSE HOLDER.   |       | )106     | F02   | 10<br>2A<br>2B | PRIMV-2<br>PRIMV-3             | 1 2                                    | k<br>K    |        |
| 8<br>9               | SF-LINEL<br>SF-LINEL<br>SF-LINEL  | 1<br>8    | Y<br>L    |         |       | STGNAL NAME         |       | LV TYPE  | F     | 20             | PRIMV-3<br>PRIMV-5             | 2 2 3                                  | ĸ         |        |
| 11<br>12<br>13       | GND<br>S-LINE2                    | 0         | ř         |         |       | PRIME-2             | i     | <u> </u> |       | 3C<br>30       | PRIMV-5<br>PRIMV-5<br>SF-LINE2 | 3                                      | K<br>K    |        |
| 15<br>16             | LINE2<br>LINE2<br>S-LINE2         | 6<br>6    | Y         |         |       |                     |       |          |       | 48<br>40<br>40 | SF-LINE2<br>SF-LINE2           | :                                      | K         |        |
|                      | SF-LINE2                          | 8         | τ         |         |       |                     |       |          |       | 58<br>5C       | PR IMW-2                       | 5                                      | K         |        |
|                      | SF-LINE2<br>SF-LINE2              | 8         | Ÿ         |         |       |                     |       |          |       | 6A<br>6B       |                                | 6                                      | K         |        |
|                      |                                   |           |           |         |       |                     |       |          |       | 6D             | PRIMW-3<br>PRIMW-3<br>PRIMW-5  | 6 7                                    | K         |        |
|                      |                                   |           |           |         |       | ě                   |       |          |       | 7C             | PRIMW-5<br>PRIMW-5<br>SF-LINE2 | 7                                      | K<br>K    |        |
|                      |                                   |           |           |         |       |                     |       |          |       | 88             |                                |  | K         |        |

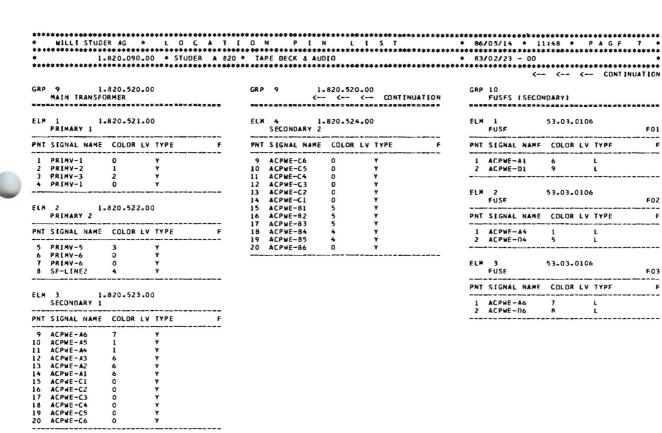
F01

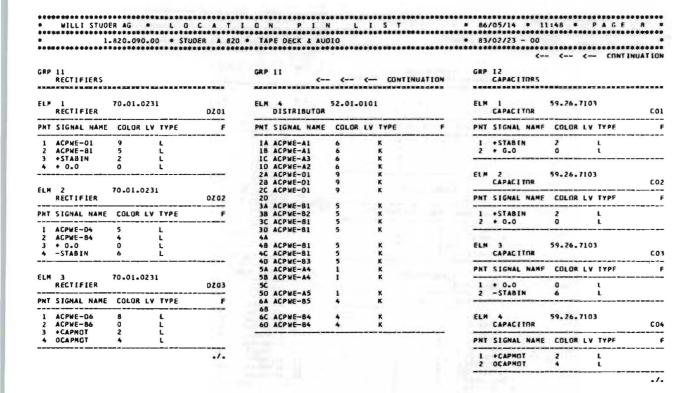
F02

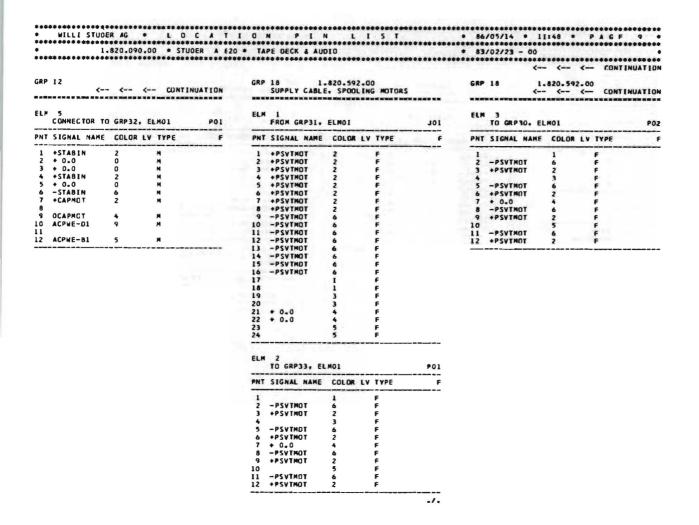
F03

GRP 7
VOLTAGE SELECTOR GRP 8 1.82C.520.00

MAIN TRANSFORMER (SPOOLING MOTORS) GRP 8 1.820.520.00 <-- <-- C-- CONTINUATION ELM 1 1-820-521-00 PRIMARY 1 FLM 1 55.12.0001 VOLTAGE SELECTOR ELM 4 1.820.524.00 SECONDARY 7 PNT SIGNAL NAME . COLOR LV TYPE PNT SIGNAL NAME COLOR LY TYPE PNT SIGNAL NAME ACPWM-C6 ACPWM-C4 ACPWM-C3 ACPWM-C3 ACPWM-C1 ACPWM-B1 ACPWM-B3 ACPWM-B3 ACPWM-B4 ACPWM-B4 ACPWM-B5 ACPWM-B6 PRIMW-1 PRIMW-2 PRIMW-3 PRIMW-1 PRINV-2 PRIMV-3 PRIMV-5 SF-LINE2 ELM 2 55.12.0001 VOLTAGE SELECTOR ELM 2 1.820.522.00 PRIMARY 2 PNT SIGNAL NAME COLOR LY TYPE PNT SIGNAL NAME COLOR LY TYPE 1 PR[MV-3 2 PR14W-3 3 PR14V-5 4 PRI4W-5 5 PRIMW-5 6 PRIMW-6 7 PRIMW-6 8 SF-LINE2 ELM 5
CONNECTOR TO SPOOLING MOTOR SUPPLY PNT SIGNAL NAME COLOR LV TYPF ELM 3 1.820.523.00 SECONDARY 1 ELM 3 55.12.0001 VOLTAGE SELECTOR PNT SIGNAL NAME COLOR LV TYPE PNT SIGNAL NAME COLOR LY TYPE 1 PRIMW-2 2 PRIMW-3 3 PRIMW-5 4 SF-LINE2

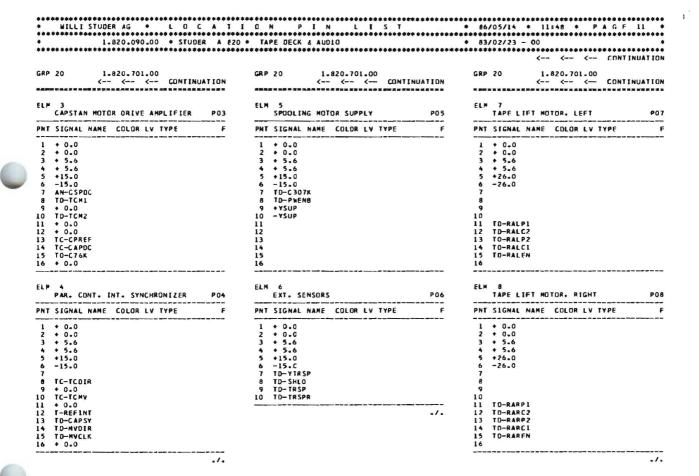






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| ** |                       |          |        |            | * TAF | PE DECK & AUD       | 10       |           |        | * 83 | **************************************   |
|----|-----------------------|----------|--------|------------|-------|---------------------|----------|-----------|--------|------|--|
|    |                       |          |        |            |       |                     |          |           |        |      | < < < CONTINUAT                          |
|    | 19 1.<br>SUPPLY CABLE |          |        |            | GRP   |                     | 820.591. | OO CONTIN | MATION | GRP  | 20 1.820.701.00<br>BASIS BOARD TAPE D    |
|    |                       |          |        | 77 3 4 3 H |       |                     |          |           |        |      | 2.3.5.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2. |
| ۲  | 1                     |          |        | J01        | ELM   |                     |          |           |        | FLM  | 1  |
| _  | FROM GRP32.           | FLWOS    |        |            |       | TO GRP21. EL        |          |           | P01    |      | SPOOLING MOTOR DRIVE AMP. LEFT           |
| 1  | SIGNAL NAME           | COLUR LV | TYPE   | F          |       | SIGNAL NAME         |          |           | F      |      | SIGNAL NAME COLOR LY TYPE                |
| l  | + 5.6                 | 3        | F      |            |       | + 5.6               | 3        | M<br>M    |        |      | • 0-0                                    |
|    | + 7.0                 | ,<br>A   | ř      | 125        |       | + 5-6<br>+5-6SENS   | 3        | ä         |        |      | + 0.0<br>+ 5.6                           |
|    | TO-C76K               | 9        | F      |            |       | TD-C76K             | 9        | м         |        |      | + 5.6                                    |
|    | + 0.0                 | 0        | F      |            |       | + 0.C               | 0        | M         |        | 5    | +15-0                                    |
|    | + 0.0                 | 0        | F      |            | 6     | · 0.0               | 0        | M         |        | 6    | -15.0                                    |
| 1  | T-PWRGN               | 5        | F      |            |       | T-PWRON             | 5        | H         |        |      | PWMPL-L1                                 |
|    | + 0.0                 | 0        | F      |            |       | + 0.0               | 0        | M         |        |      | PWMPL-L2                                 |
|    | + 0.0                 | 0        | F      |            |       | + 0.0               | 0        | M         |        |      | PWMPL-H1                                 |
| •  | + 0.0                 | 0        | Ė.     |            |       | + 0.0<br>+15.0      | 0        | F         |        |      | PWMPL-H2<br>PWMPL-L3                     |
|    | -15.0                 | 4        | Ē      |            |       | -15.0               | 6        | Ģ         |        |      | PWHPL-L4                                 |
|    | + 0.0                 | 0        |        |            |       | + 0.0               | 0        | ũ         |        |      | AN-ICLD                                  |
|    | • 0.0                 | ŏ        | ,<br>F |            |       | + 0.0               | o o      | M         |        |      | PHMPL-L5                                 |
|    | +24.0                 | 7        | F      |            |       | +24.0               | 7        | н         |        |      | PWMPL-L6                                 |
|    | +REMSUP               | 8        | F      |            |       | +REMSUP             | 8        | M         |        |      | + 0.0                                    |
|    | +STABSNS              | 3        | F      |            | 17    | + STABSNS           | 3        | M         |        |      |  |
|    | -STABSNS              | 5        | F      |            | 18    | -STABSNS            | 5        | H         |        |      |  |
|    | -26.0                 | 9        | F      |            |       | -26.C               | 9        | M         |        | ELM  |  |
| 1  | +26.0                 | 1        | F      |            |       | +26.0               | 1        | H         |        |      | SPOOLING MOTOR DRIVE AMP. RIGHT          |
|    | + 0.0                 | 0        | F      |            |       | + 0.0               | 0        | M         |        |      |  |
|    | +0.0SENS              | 0        | F      |            |       | +O.OSENS<br>OCAPMOT | 0        | Ä         |        |      | SIGNAL NAME COLOR LY TYPE                |
|    | ACADMOT               | 3        | r<br>c |            |       | +CAPMOT             | 2        | 2         |        |      | + O.O                                    |
| _  | VCAPTUI               |          |        |            | 27    |                     |          |           |        |      | + 0.0                                    |
|    |                       |          |        | -/-        |       |                     |          |           |        |      | + 5.6                                    |
|    |                       |          |        |            |       |                     |          |           |        | 4    | + 5.6                                    |
|    |                       |          |        |            |       |                     |          |           |        | 5    | +15-0                                    |
|    |                       |          |        |            |       |                     |          |           |        | 6    | -15-0                                    |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-L1                                 |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-L2                                 |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-H1                                 |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-H2<br>PWMPR-L3                     |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-L4                                 |
|    |                       |          |        |            |       |                     |          |           |        |      | AN-ICRO                                  |
|    |                       |          |        |            |       |                     |          |           |        |      | PWPR-L5                                  |
|    |                       |          |        |            |       |                     |          |           |        |      | PWMPR-L6                                 |
|    |                       |          |        |            |       |                     |          |           |        |      | ♦ 0.0                                    |



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20 1.820.701.00
<-- <-- <-- CONTINUATION
                                                                                                                                                                                                                                       GRP 20 1.820.701.00 <-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.820-701.00
<-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUSE FAILURE DETECTOR
                                                                                                                                                                                                                                       TAPE TENSION SENSOR, LEFT
                    TACHO SENSOR (SPOOLING M. LEFT) PO9
    PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                         PHT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PNT SIGNAL m

1 +CAPMOT

2 +CAPMOT

3

4 +24.0

5 -STABSN
6 T-SUPVOI
7 +STABSN
9 + 5.6
10 + 5.6
11 + 0.0
12 + 0.0
13 -15.0
14 +15.0
15 +26.0
16 -26.0
              + 0.0
+ 0.0
+ 5.6
+ 5.6
+15.0
-15.0
AN-RESI
TD-TML2
TD-TML1
                                                                                                                                                                                                                                                     * 0.0
* 0.0
* 5.6
* 5.6
* 15.0
                                                                                                                                                                                                                                           1 2 3 4 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          +24-0
-STABSNS
T-SUP VON
+STABSNS
+ STABSNS
+ 5-6
+ 0-0
+ 0-0
+ 15-0
+ 15-0
+ 26-0
- 26-0
                                                                                                                                                                                                                                                    AN-TTL
                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                       ELM 13
TAPE TENSION SENSOR, RIGHT
   ELM 10
TACHO SENSOR (SPOOLING M. RIGHT) P10
                    SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                         PHT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                     F
                + 0.0
+ 0.0
+ 5.6
+ 5.6
+ 15.0
-15.0
AN-RES2
TD-TMR2
TD-TMR1
                                                                                                                                                                                                                                         1 + 0.0
2 + 0.0
3 + 5.6
4 + 5.6
5 + 15.0
6 - 15.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -/-
    1 2 3 4 5 6 7 8 9 10
                                                                                                                                                                                                                                                    AN-TTR
  ELM 11
MOVE SENSOR
                                                                                                                                                                                           P11
    PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                F
                + 0.0
+ 0.0
+ 5.6
+ 5.6
+15.0
-15.0
AN-RES3
TD-MOVE2
TD-MOVE2
  20 1-820-701-00
<-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.820.701.00
<-- <-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                        1.820.701.00
<-- <-- CONTINUATION
                                                                                                                                                                                                                                      GRP 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELM 17
TO HEAD BLOCK ASSEMBLY
                                                                                                                                                                                                                                      ELM 16
PARALLEL REMOTE CONTROL
  ELM 15
DISPLAY DRIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PHT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                        PHT SIGNAL NAME COLOR LY TYPE
  PHT SIGNAL NAME COLOR LY TYPE
               + 0.0
+ 0.0
+ 0.0
+ 5.6
+ 5.6
+ 24.0
+ 24.0
TM-DSL4
TM-IRES
TM
                                                                                                                                                                                                                                                  + 0.0
+ 0.0
+ 0.0
+ 0.0
+ 5.6
+ REM SUP
+ REM SUP
+ REM SUP
TH-DSL5
TM-TRES
TM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              + G-0
+ 0-0
+ 5-6
+ 5-6
+ 15-0
- 15-0
T-SADA
T-SADA
T-SADC
T-RFADSL
T-MRTSL
T-OT-RP1
T-OT-RP1
T-OT-RP2
T-DT-SJM
T-OT-MP
T-OT-MP
123345678901123415678901123456789011234567890133345678901333456789012222222222222333333567890
                                                                                                                                                                                                                                      123456789010112315167181902012224562903312334035637389390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 2 3 4 5 6 7 8 9 10 11 1 12 13 14 15 16 17 8 19 20 21 22 23 4 25 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               + 0-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              + 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +24.0
+ 0.0
+ 0.0
```

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* MILLI STUDER AG * L O C A T I O N P I N L I S T * 86/05/14 * 11:48 * P A G E 14 *

* 1.820.090.00 * STUDER A E20 * TAPE DECK & AUDIO * 83/02/23 - 00 * C-- <-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GRP 20
   GRP 20 1.82C.701.00 <-- <-- CONTINUATION
                                                                                                                                                                                                                                                                     GRP 20
                                                                                                                                                                                                                                                                    GRP 20 1.820.701.00 

<--- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GRP 20 1.820.701.00

<-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELM 31
TO GRP25. FLM04/05
    ELM 18
VU-METER PANEL, EXTERNAL
                                                                                                                                                                                                                                                                  ELM 19
SDURCE SELECTOR
    PNT SIGNAL NAME COLOR LV TYPE F
   PNT SIGNAL

1 + 0.0
2 + 0.0
3 + 5.6
4 + 5.6
5 + 15.0
6 - 15.0
7 T-SADA
8 T-SADB
9 T-SADC
1 T-READSL
T-MRTSL
1-DT-CH1
T-DT-CH2
T-DT-CH3
T-DT-CH3
T-DT-CH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PNT SIGNAL NAME COLOR LY TYPE F
                                                                                                                                                                                                                                                                       PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                     1 + 0.0

2 + 0.0

3 + 5.6

4 + 5.6

5 + 15.0

6 - 15.0

7 T-SADA

8 T-SADA

8 T-SADC

10 T-READSL

11 T-MRTSL

12 T-DT-CH1

13 T-DT-CH2

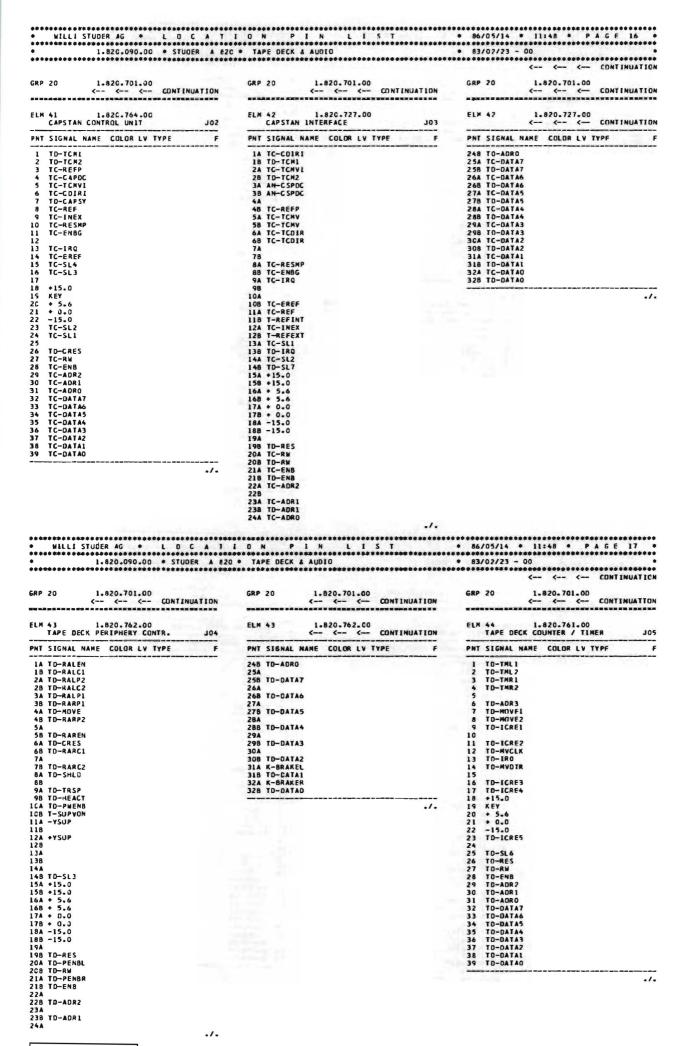
14 T-DT-CH3

15 T-OT-RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 FRMGNO
2 TRANSCM
3 TRANSA
4 TRANSA
5 RECEIVA
6 RECEIVA
7 RECEIVA
8 FRMGND
9 SPARE
  10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELM 32
TO AUDIO BASIS BOARD. FLM30
PNT SIGNAL NAME COLOR LV TYPF
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 + 0.0
2 TO-MYCLK
3 + 0.0
4 TO-MYDIR
5 + 0.0
                                                                                                                                                                                                                                                                    ELM 30
SSDA INT. SYNCHRONIZER
                       + 0.0
T-VARSPD
+ 0.0
                                                                                                                                                                                                                                                                     SSDA INT. SYNCHRONIZER P20
PNT SIGNAL NAME COLOR LY TYPE F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TO-NOTE

TO-
                                                                                                                                                                                                                                                                                   GND
TDS-CLK
SYS-CTS
SYS-RX
SYS-DTR
SYS-TX
                    +24.0
+ 0.0
+ 0.0
                                                                                                                                                                                                                                                                                     GND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
19
20
21
22
23
24
25
26
  GRP 2D 1.820.701.00 

<--- <-- CONTINUATION
                                                                                                                                                                                                                                                                 GRP 20 1.820.701.00 <-- <-- CONTINUATION
  GRP 20 1.820.701.00 <-- <-- CONTINUATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELM 40 1.820.759.00
SPOOLING MOTOR DRIVER
 ELM 33
TO AUDIO BASIS BOARD, ELM31
                                                                                                                                                                                                                                                                  ELM 34
INT. SYNCHRONIZER
                                                                                                                                                                                                                                                                     PNT SIGNAL NAME COLCR LV TYPE
   PNT SIGNAL NAME CCLOR LV TYPE F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F
   1 + 0.0
2 CA-SAFE
3 + 0.0
4 CA-ADR-R
5 + 0.0
6 CA-ADR-S
7 + 0.0
8 CA-ADR-T
9 + 0.0
                                                                                                                                                                                                                                                                     1 TC-SL3
2 + 0.0
3 TC-SL4
4 + 0.0
5 TC-IRQ
6 + 0.0
7 TC-ENBG
8 + 0.0
9 TC-RESMP
10 + 0.0
11 + 0.0
12 + 0.0
13 + 0.0
14 + 0.0
15 TC-RH
16 + 0.0
17 TC-ENB
18 + 0.0
17 TC-ENB
18 + 0.0
17 TC-ENB
18 + 0.0
17 TC-ADR2
20 + 0.0
21 TC-ADR2
21 TC-ADR1
22 + 0.0
21 TC-ADR1
22 + 0.0
21 TC-ADR1
23 TC-ADR0
24 + 0.0
27 TC-OATA6
28 + 0.0
29 TC-DATA7
26 + 0.0
21 TC-DATA7
26 + 0.0
21 TC-DATA8
28 + 0.0
21 TC-DATA8
28 + 0.0
21 TC-DATA8
29 TC-DATA8
20 + 0.0
21 TC-DATA8
21 TC-OATA8
22 + 0.0
21 TC-DATA8
23 TC-DATA8
24 + 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 AN-ICR
2 AN-ICR
3 AN-ICR
4 AN-ICR
4 AN-ICR
5
6
7 PWMPR-H1
8 PWMPR-L3
9 AN-ICRD
10 PWMPR-L6
11
12
13
14
15 TD-PENBR
16
17 TD-C76K
18 +15.0
19 KEY
20 + 5.6
21 + 0.0
22 -15.0
23 TD-PENBL
24
25
26 AN-ICL
27 AN-ICL
27 AN-ICL
28 PWMPL-H
29 PWMPL-L1
30 AN-ICL
31 PWMPL-L1
32 PWMPL-L1
33 PWMPL-L3
34 PWMPL-L3
35 PWMPL-L3
36 PWMPR-L
36 PWMPR-L
37 PWMPR-L
38 PWMPR-L
38 PWMPR-L
38 PWMPR-L
- CA-DATA
- O.0
- CA-ADR-U
- O.0
- CA-ADR-U
- O.0
- CA-ADR-U
- O.0
- CA-DATAU
- O.0
- CA-DA
                                                                                                                                                                                                                                                                    8 9 10 11 12 13 14 15 16 17 18 19 20 12 22 32 42 52 62 72 83 33 34 53 63 73 83 40
```

TC-DATA3 + 0.0 TC-DATA2 + D.0 TC-DATA1 + 0.0 TC-DATA0 + 0.0



| :  | MILLI STUDER AG & L O C   | R A 820 | ******   | **************************************   | ********** | 83/   | /02/23 - 00  | • |
|--|---|---------|--|--|------------|---|--|---|
|  | 20 1.820.701.00<br>< < CONTINU  |         |  | 20 1.820.701.00<br>< < CONT  |            |   | 20 1.820.701.00<br>< < C   |   |
| ELP  | 45 1.82C.760.0C<br>SPOOLING MOTOR CONTROLLER  | 106     | ELM  | 46 L.82C.785.00<br>MP-UNIT TD CONTROL  | J07        | ELM   | 47 1.820.763.00<br>TAPE DECK SERIAL INTERFAC   | F JOA                                   |
| PNT  | SIGNAL NAME COLOR LV TYPE   | F       | PNT  | SIGNAL NAME COLOR LY TYPE  | F          | PNT   | SIGNAL NAME COLDE LY TYP   | F F                                     |
| 12345678901123145617890122224567890123333356 | AN-TTL AN-TTR AN-TTL AN-TTL AN-TTR AN-IRL AN-IRR  *15.0 KEY * 5.6 * 0.0 -15.0 T0-SL4  TD-RES TD-RH TD-ENB TD-ADR2 TD-ADR1 TD-ADR0 TO-OATA5 TD-OATA5 TD-OATA5 TD-OATA3 |         | 1 2 2 3 4 5 6 6 7 8 9 10 0 112 13 114 115 116 117 118 120 221 224 225 226 227 228 23 31 32 33 33 4 33 5 36 | TD-P448 TD-P45B TD-SL3 TD-SL2 TD-RESMP TD-ADR3 TD-C614K TD-P17B TD-NP1 TD-NX TD-TX TD-TX TD-TX TD-TX TD-TX TD-TX TD-TX TD-TX TD-SL7 TD-SL7 TD-G600 +15.0 KEY + 5.6 + 0.0 TD-C307K TD-SL4 TD-SL5 TD-RESET TD-RESET TD-RESET TD-RESET TD-ADR0 TD-ADR0 TD-ADR0 TD-ADR0 TD-DATA6 |            | 1 2 3 4 5 6 7 8 9 10 11 1 2 3 1 4 5 6 7 8 9 10 11 1 2 1 3 1 4 5 1 6 7 1 1 8 9 2 2 2 3 4 5 6 2 7 2 2 9 3 1 3 3 3 3 4 5 6 3 3 6 6 6 6 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 | AN-TYL AN-TYR AN-ICR AN-ICR AN-ITR AN-TIR AN-TIR AN-RESI AN-RESI AN-RESSI A |   |
| 38   | TD-DATA2<br>TD-DATA1<br>TD-DATA0  |         | 38   | TD-DATA2<br>TD-DATA1<br>TD-DATA0   |            | 38  | TD-DATA2 TD-DATA1 TD-DATAD   |   |

GRP 20 1.820.701.00 <-- <-- CONTINUATION GRP 20 1.820.701.00 <-- <-- CONTINUATION GRP 20 1.820.701.00 <-- <-- CDNTINUATION ELM 48 1.820.753.00

<-- <-- <-- CONTINUATION

PNT SIGNAL NAME COLDR LV TYPE F ELM 49 1-820-786-00 MP-UNIT MASTER ELM 48 1.820.753.00 MASTER SERIAL INTERFACE MP-UNIT MASTER
PNT SIGNAL NAME COLOR LV TYPE F PNT SIGNAL NAME COLOR LY TYPE PNT SIGNAL NJ
248 TM-IRQ
25A TD-MVCIR
25B TD-MVCIR
26A TM-RESET
26B IM-RE
27B TM-BE
37B TM-BE
37 TM-P148
2 TM-P148
3 TM-SL3
4 TM-SL2
5 TM-RESMP
6 TM-ADR3
7 TM-C614K
8 TM-BUSSM
9 TM-NM1
11 TM-TX
12 TM-DRENR
13 TM-TX
11 TM-TX
12 TM-DRENR
14 T-PMRDN
15 TM-SL7
16 TM-C76K
17 TM-C9600
18 +15-0
19 KFY
20 + 5-6
21 + 0-0
22 TM-C307K
23 TM-SL6
25 TM-SL6
26 TM-RESET
27 TM-MR
28 TM-DATA6
31 TM-DATA6
31 TM-DATA6
31 TM-DATA6
36 TM-DATA6
36 TM-DATA6
37 TM-DATA6
38 TM-DATA6
38 TM-DATA6
38 TM-DATA6 1A TM-OSL4

1B TM-ISL4

2A TM-OSL5

2A TM-OSL5

3A TM-DESL5

3A TM-DESL5

3A TM-DESL5

3A TM-DENB

5B TM-IENB

5B TM-IENB

5B TM-IENB

6A TM-DADRO

6B TM-IAORO

7A TM-DENB

5B TM-IAORO

9A TM-SL5

10A TOS-RX

11A TOS-CTX

11A TOS-CTX

12B SYS-TX

12B SYS-TX

12B SYS-TX

12B SYS-TX

12B SYS-TX

12B TOS-CTS

13A SYS-CTS

13A SYS-CTS

13A SYS-CTS

13A SYS-CTS

13A SYS-CTS

13A SYS-CTS

13B SYS-CTS

12B TM-RESIR

21A TD-MOVE

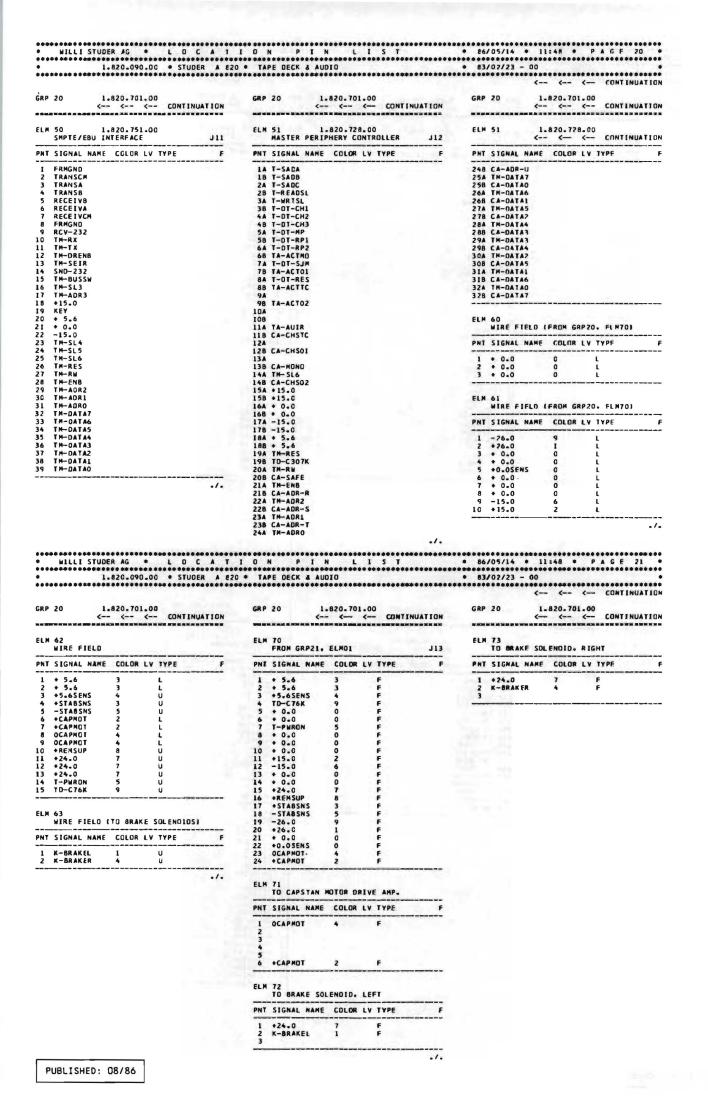
22B TM-RESS

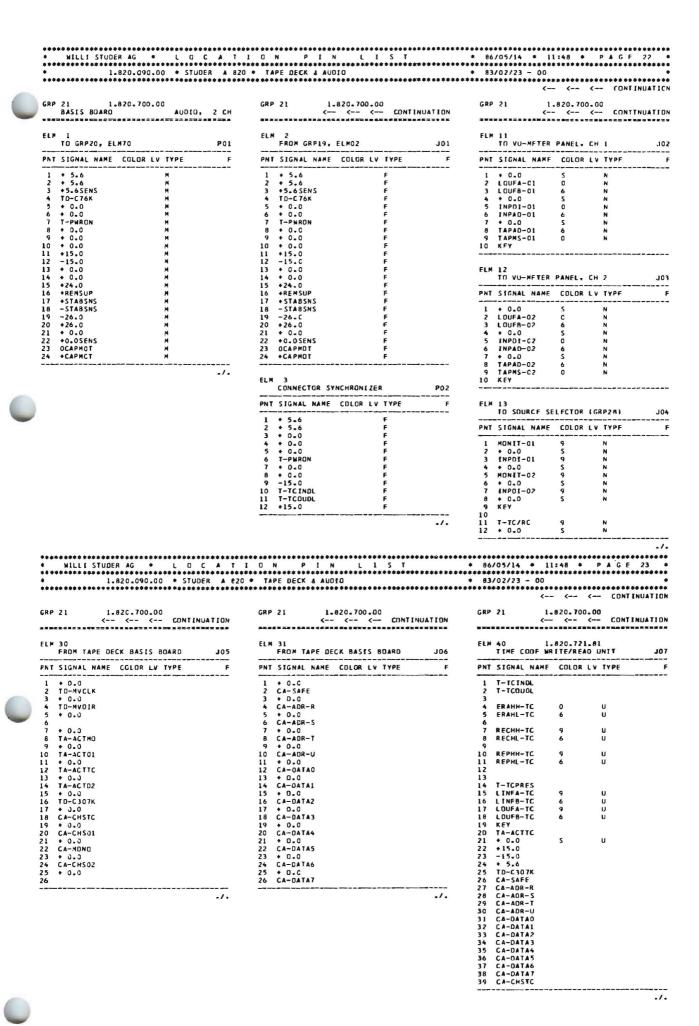
23B TM-RESS

24A TM-RESS ./.

PUBLISHED: 08/86

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| NUATIO | - CONTIN |      |              |        | 21           | GRP |         |       | 320.700 | 1.     | 21              | GRP  |          | .820.700.00              | 21 1.                |
|--------|----------|------|--------------|--------|--------------|-----|---------|-------|---------|--------|-----------------|------|----------|--------------------------|----------------------|
|        | - CONTIN | <    | <b>&lt;-</b> | <      |              |     | NDITAUN | CONTI | <       | <      |                 |      | INUATION | - < < CONT               | <                    |
|        |          | 2222 |              |        |              |     | ******  |       |         |        |                 | **** | *******  |                          |                      |
| Jì     |          |      |              | AMPL I | 43<br>RECORD | ELM | F       |       | 20.713  | 1.     | 42              | ELM  | J08      | .820.722.81<br>ELAY UNIT | 41 1.                |
|        |          |      |              |        |              |     |         |       |         | VERT C | MF-UKI          |      |          |                          |                      |
|        | TYPE     |      |              | NAME   | SIGNAL       | PNT | F       | YPE   | COLOR   | NAME   | SIGNAL          | PNT  | f        | COLOR LY TYPE            | SIGNAL NAME          |
|        |          |      |              | 21     | RECIN-C      | 1   |         |       |         | 01     | DCLBY-          |      |          |                          | T-TCINDL             |
|        |          |      |              | 01     | EQUAL -C     | 2   |         |       |         | 01     | K-REC-          |      |          |                          | T-TCOUDL             |
|        |          |      |              | 11     | DULBY-0      | 3   |         |       |         |        | + 0.0           |      |          |                          | + 0.0                |
|        |          |      |              | , ,    | A 0.0        | 5   |         |       |         | 0.1    | BIASA-          |      |          |                          | TD-MV01R             |
|        |          |      |              | 21     | BIASA-C      | 6   |         |       |         | 01     | BIASE-          |      |          |                          | TD-MVCLK             |
|        |          |      |              | 01     | BIASA-C      | 7   |         |       |         | 01     | BIASC-          |      |          |                          | ID HTGEN             |
|        |          |      |              | 01     | BIASC-C      | 8   |         |       |         |        |                 | 8    |          |                          |                      |
|        | U        |      | 6            | 1      | RECHL-C      | 9   |         |       |         | 01     | ERACS-          | 9    |          |                          |                      |
|        | U        |      | 9            | 01     | RECHH-C      | 10  |         |       |         | 01     | AFC SW-         | 10   |          |                          |                      |
|        | U        |      | 5            |        | + 0-0        | 11  |         |       |         |        | + 0.0           |      |          |                          |                      |
|        |          |      |              | 1      | SYNHL-0      | 12  |         |       | 6       | 01     | ERAHL-          |      |          |                          |                      |
|        |          |      |              | 01     | ZANHH-0      | 13  |         | 1     | 2       | 01     | ERAHM-          |      |          |                          |                      |
|        |          |      |              |        | + 0.0        | 14  |         | !     | 9       | 01     | ERAHH-          |      |          |                          | T-TCPRES             |
|        |          |      |              | 1      | AFCSM-C      | 15  |         | ,     | 2       | υı     | ERAHO-          |      |          |                          |                      |
|        |          |      |              | 11     | CA-BARO      | 17  |         |       |         | 0.1    | + 0.0<br>CA-BAD |      |          |                          |                      |
|        |          |      |              | 01     | CA-RSWC      | 18  |         |       |         | 01     | CA-RSH          |      |          |                          |                      |
|        |          |      |              |        | KEY          | 19  |         |       |         | ••     | KEY             |      |          |                          | KEY                  |
|        |          |      |              |        | TA-ACTO      |     |         |       |         |        | TA-ACT          |      |          |                          | TA-ACTTC             |
|        |          |      |              |        | + 0.0        | 21  |         |       |         |        | + 0.0           | 21   |          |                          | + 0.0                |
|        |          |      |              |        | +15.0        |     |         |       |         |        | +15.0           | 22   |          |                          | +15.0                |
|        |          |      |              |        | -15.0        |     |         |       |         |        | -15.0           |      |          |                          | -15.0                |
|        |          |      |              | -100   | + 5.6        |     |         |       |         |        | + 5.6           |      |          |                          | + 5.6                |
|        |          |      |              |        | TO-C301      |     |         |       |         |        | TD-C30          |      |          |                          | TD-C307K             |
|        |          |      |              |        | CA-SAFE      |     |         |       |         |        | CA-SAF          |      |          |                          | CA-SAFE              |
|        |          |      |              |        | CA-ADR-      |     |         |       |         |        | CA-ADR          |      |          |                          | CA-ADR-R             |
|        |          |      |              |        | CA-ADR-      |     |         |       |         |        | CA-AOR-         |      |          |                          | CA-ADR-S<br>CA-ADR-T |
|        |          |      |              |        | CA-ADR-      |     |         |       |         |        | CA-ADR          |      |          |                          | CA-ADR-U             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT          |      |          |                          | CA-DATAO             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT          |      |          |                          | CA-DATAL             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT.         |      |          |                          | CA-DATA2             |
|        |          |      |              | A3     | CA-DATA      | 34  |         |       |         |        | CA-DAT          |      |          |                          | CA-DATA3             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT          |      |          |                          | CA-DATA4             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT.         |      |          |                          | CA-DATA5             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT          |      |          |                          | CA-DATA6             |
|        |          |      |              |        | CA-DATA      |     |         |       |         |        | CA-DAT.         |      |          |                          | CA-DATA7             |
|        |          |      |              | 01     | CA-CHSC      | 39  |         |       |         | 01     | CA-CHS          | 39   |          |                          | CA-CHSTC             |

| GRP | 21 1.                 | 820.700.00<br>< < CON       | TINUATION | GRP |                       | 820.700.0             | O CONTINU | MOITAL | GRP | 21 1.       | 820.700.00                            | THUATION |
|-----|-----------------------|-----------------------------|-----------|-----|-----------------------|-----------------------|-----------|--------|-----|-------------|---------------------------------------|----------|
| ELM | 44 1.<br>REPRODUCE AM | 820.710.81<br>PLIFIER, CH I | J11       | ELM | 45 1.<br>LINE AMPLIFI | 820.714.8<br>ER. CH 1 | 1         | J12    | ELM | 46 1.       | 820.720.CO<br>SWITCH<br>COLOR LY TYPF | J13      |
| PNT | SIGNAL NAME           | COLOR LY TYPE  S U 9 U 6 U  | F         | PNT | SIGNAL NAME           | COLDR LV              | TYPE      | F      | PNT | SIGNAL NAME | COLOR LY TYPE                         | F        |
| 1   | TAPL I-01             |                             |           | 1   | MONI T-01             |                       |           |        |     | INPAD-01    |                                       | 1000     |
| 2   | EQUAL-01              |                             |           | 2   | + 0.0                 | S                     | υ         |        | 2   | + 0.0       |                                       |          |
| 3   | SYPRE-01              |                             |           | 3   | LOUFA-01              | 0                     | U         |        | 3   | INPAD-02    |                                       |          |
| 4   | K-REC-01              |                             |           | 4   | LOUFB-01              | 6                     | U         |        | 4   | + 0.0       |                                       |          |
| 5   | + 0.0                 | S U                         |           | 5   | + 0.0                 |                       |           |        | 5   | TAPMS-02    |                                       |          |
| 6   | REPRE-01              | 9 U                         |           | 6   | INPO1-01              |                       |           |        | 6   | + 0.0       |                                       |          |
| ,   | REPRO-01              | 4 U                         |           | 7   | INPAD-01              |                       |           |        | 7   | TAPMS-01    |                                       |          |
| 8   | * 0.0                 |                             |           | 8   | RECIN-01              |                       |           |        | 8   | + 0.0       |                                       |          |
| 10  | TAPDI-01              |                             |           | 10  | TAGAG-01              |                       |           |        | 10  | TAPUI-UI    |                                       |          |
| 11  | + 0-0                 |                             |           | 11  | TAPMS-01              |                       |           |        | 11  | TARRI-02    |                                       |          |
| 12  | SYNHL-01              |                             |           | 12  | TAPDI-01              |                       |           |        | 12  | + 0-0       |                                       |          |
| 13  | SYNHH-01              |                             |           | 13  | + 0-0                 | <                     | Ü         |        | 13  | RECIN-02    |                                       |          |
| 14  | + 0.0                 |                             |           | 14  | LINEA-01              | ŏ                     | ŭ         |        | 14  | + 0-0       |                                       |          |
| 15  | CA-EQL01              |                             |           | 15  | LINFB-01              | 6                     | Ū         |        | 1.5 | RECIN-01    |                                       |          |
| 16  | CA-SYNOI              |                             |           | 16  | CA-EGLO1              |                       |           |        | 16  |             |                                       |          |
| 17  | CA-L 2MOI             |                             |           | 17  | CA-SANOT              |                       |           |        | 17  |             |                                       |          |
| 18  | + 0.0                 |                             |           | 18  | CA-LSW01              |                       |           |        | 18  |             |                                       |          |
| 19  | KEY                   |                             |           | 19  | KEY                   |                       |           |        | 19  | KFY         |                                       |          |
| 20  | TA-ACTUL              |                             |           | 20  | TA-ACTO1              |                       |           |        | 20  | TA-ACTMO    |                                       |          |
| 22  | 4 15 O                |                             |           | 21  | + 0.0                 |                       |           |        | 21  | * 0.0       |                                       |          |
| 23  | -15.0                 |                             |           | 22  | -15.0                 |                       |           |        | 22  | -15.0       |                                       |          |
| 24  | + 5.6                 |                             |           | 24  | + 5-6                 |                       |           |        | 24  | 4 5 6       |                                       |          |
| 25  | TD-C 307K             |                             |           | 25  | TD-C307K              |                       |           |        | 25  | TD-C307K    |                                       |          |
| 26  | CA-SAFE               |                             |           | 26  | CA-SAFE               |                       |           |        | 26  | CA-SAFE     |                                       |          |
| 27  | CA-ADR-R              |                             |           | 27  | CA-ADR-R              |                       |           |        | 27  | CA-ADR-R    |                                       |          |
| 28  | CA-ADR-S              |                             |           | 28  | CA-ADR-S              |                       |           |        | 28  | CA-ADR-S    |                                       |          |
| 29  | CA-ADR-T              |                             |           | 29  | CA-ADR-T              |                       |           |        | 29  | CA-ADR-T    |                                       |          |
| 30  | CA-ADR-U              |                             |           | 30  | CA-AOR-U              |                       |           |        | 30  | CA-ADR-U    |                                       |          |
| 31  | CA-DATAO              |                             |           | 31  | CA-DATAO              |                       |           |        | 31  | CA-DATAO    |                                       |          |
| 22  | CA-DAYAZ              |                             |           | 32  | CA-OATAI              |                       |           |        | 32  | CA-DATAT    |                                       |          |
| 34  | CA-DATA3              |                             |           | 33  | CA-DATA2              |                       |           |        | 33  | CA-CATA2    |                                       |          |
| 35  | CA-DATAS              |                             |           | 35  | CA-DATA4              |                       |           |        | 35  | CA-DATA4    |                                       |          |
| 36  | CA-DATAS              |                             |           | 36  | CA-DATAS              |                       |           |        | 36  | CA-DATAS    |                                       |          |
| 37  | CA-DATA6              |                             |           | 37  | CA-DATA6              |                       |           |        | 37  | CA-DATA6    |                                       |          |
|     | CA-DATA7              |                             |           | 38  | CA-DATA7              |                       |           |        |     | CA-DATA7    |                                       |          |
|     | CA-CHS01              |                             |           | 20  | CA-CHSO1              |                       |           |        |     | CA-MONO     |                                       |          |

| •   | 1   | 820.090            | 00 + STU         | DER A 820 | * TAI   | PE DECK & AUG                           | 10        |                |       | • 83  | /02/23 - 00 | · • • • • • • • • • • • • • • • • • • • | •   |
|---|---|--------------------|------------------|-----------|---|---|-----------|----------------|-------|---|-------------|---|-----|
| •••                                       | ***********   |                    | ********         |           |   | • |           | ********       |       |   |             | - < < (                                 |     |
| GRP                                       | 21 1  | .820.700.<br>- < < | OC<br>CONTE      | NO1TAUN   | GRP   | 21 l.<br><                              | 820.700.0 | O<br>- CONTINU | ATION | GRP   | 21 (<br>    | .820.700.00<br>- < < C                  |     |
|   |   |                    |                  |           |   |   |           |                |       |   |             | .82C.710.81<br>MPLIFIER. CH 7           | J16 |
| PNT                                       | SIGNAL NAME   | COLOR L            | V TYPE           | F         | PNT   | SIGNAL NAME                             | COLOR LV  | TYPE           | F     | PNT   | SIGNAL NAME | COLOR LY TYP                            | F F |
| 2345676901112314567192C122345673333356738 | DOLBY-02 K-REC-C2 + 0.0 + 0.0 BIASA-02 BIASB-02 BIASS-02 BIASS-02 ERACS-02 ERACS-02 - 0.0 ERAHL-02 ERAHH-02 ERAHH-02 ERAHH-02 ERAHH-02 ERAHH-02 - 0.0 CA-BAD02 CA-RS\02 KEY TA-ACT02 + 0.0 - 15.0 + 5.6 TO-C307K CA-SAFE CA-ADR-S CA-ADR-S CA-ADR-T CA-ADR-T CA-DATA0 CA-DATA1 CA-DATA1 CA-DATA3 CA-DATA3 CA-DATA4 CA-DATA6 |                    | U<br>U<br>U<br>U |           | 2 3 4 5 6 7 8 9 10 11 12 13 14 15 15 16 17 18 19 20 22 23 24 22 6 27 8 29 30 31 32 33 34 35 36 37 8 | EQUAL-02                                |           |                |       | 2 3 4 5 6 7 8 9 0 10 1 12 3 1 4 5 6 7 1 1 1 2 3 1 1 4 5 6 1 1 7 1 1 1 2 2 2 2 2 4 5 2 2 7 2 2 9 3 3 1 4 5 3 3 7 8 3 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 |             | S U                                     |     |
|   |   |                    |                  | ./.       |   |   |           |                | -/-   |   |             |   | ./. |

| ***         | •      | ******            | ******  | DEK # 520 | * 1AP       | *********  | ********** | *******  | *******   | ****           |  | *****            | ********    | *****  |
|-------------|--|-------------------|---------|-----------|-------------|--|------------|----------|-----------|----------------|--|------------------|-------------|--------|
| GRP         | 21 1.<br><                                   | 820.700.0<br>< <- | O CONTI | NUAT 10N  | GRP         | 21 1.  | 820.700.00 | CONTINUA |           |                | 21 1.<br><   |                  |             | NUATIO |
|             | 50 1.<br>LINE AMPLIFI<br>SIGNAL NAME         |                   |         |           | ELM         |  |            |          |           | ELM            | 70<br>CONN. HEAD B   | LOCK AS          | SEMBLY      |        |
| PNT         | SIGNAL NAME                                  | CCLOR LY          | TYPE    | F         | PNT         | SIGNAL NAME  | COLOR LV   | TYPE     | F         | PNT            | SIGNAL NAME  | COLOR I          | LV TYPF     |        |
| 1           | MONIT-02<br>+ 0.0<br>LOUFA-02<br>LOUFB-02    |                   |         |           | 1<br>2<br>3 | T-TC1NDL<br>1-TCOUDL<br>T-TC/RC                        |            |          | . <b></b> | 1 2 3          | REPRE-01<br>REPRO-01<br>+ 0.0                                | 9<br>6<br>S      | 8<br>8<br>8 |        |
| 5<br>6<br>7 | + 0.0<br>INPD1-02<br>INPAD-02<br>RECIN-02    | 0                 | U       |           | ELM         | 65<br>WIRE FIELD (                                     | TO GRP21.  | ELM701   |           | 6              | RECHL-01   | 6                | B<br>B      |        |
| 9           | + 0.0<br>TAPAD-02<br>TAP4S-02                |                   |         |           | PNT         | SIGNAL NAME  | COLOR LV   | TYPE     | F         | 9<br>10<br>11  | + 15.0<br>+ 5.6<br>ERACS-02<br>+ 0.0<br>REPHL-YC<br>RECHL-TC | 2<br>3<br>7      | В<br>В      |        |
| 3           |  | 0                 | U<br>U  |           | 3           | + 0.0<br>+ 5.6   | 0<br>3     | U<br>U   |           | 12<br>13<br>14 | + 0.0<br>REPHL-TC<br>RECHL-TC                                | S<br>6<br>6      | B<br>B      |        |
| 6           | LINFB-02<br>CA-EQLO2<br>CA-SYNO2<br>CA-LSWO2 | 6                 | U       |           | ELM         | 66<br>MIRE FIELD (<br>SIGNAL NAME<br>ERACS-02<br>-15.C | TO GRP21.  | ELM70)   |           | 16<br>17       | FRAHK-01<br>FRAHK-01   | 6                | В<br>В<br>В |        |
| 9           | KEY<br>TA-ACTO2                              |                   |         |           | PNT         | SIGNAL NAME  | CDLOR LV   | TYPE     | F         | 19             | FRAHO-C1   | S                | R           |        |
| 2           | + 0.0<br>+15.0<br>-15.0                      |                   |         |           | 1 2         | ERAC S-02<br>-15.C                                     | 7<br>6     | U<br>U   |           | 21             | RFPRO-02<br>+ 0-0  | 6<br>S           | B<br>B      |        |
| 4 5 6       | + 5.6<br>TD-C3C7K<br>CA-SAFE<br>CA-ADR-R     |                   |         |           |             |  |            |          | ./.       |                | RECHH-02<br>RECHL-C2   | 6                | B<br>B      |        |
| 9           | CA-ADR-S<br>CA-ADR-T<br>CA-ADR-U             |                   |         |           |             |  |            |          |           |                | -15.0<br>+ 0.0   | <b>6</b><br>0    | B<br>B      |        |
| 2           | CA-DATAO<br>CA-DATAI<br>CA-DATA2             |                   |         |           |             |  |            |          |           | 32<br>33       | R FPHH-TC<br>R ECHH-TC<br>ERAHH-TC                           | 9                | 8<br>B<br>B |        |
| 5           | CA-DATA3<br>CA-DATA4<br>CA-DATA5             |                   |         |           |             |  |            |          |           | 35<br>36       | FRAHK-07<br>FRAHK-02<br>FRAHK-02<br>FRAHO-02                 | 2<br>6<br>9<br>5 | B<br>R<br>B |        |

| • 1.820.090.00 * STUD                             |             | APE DECK & AU                        | 010        |          |     | . 83    | /02/23 - 00                          |          |             |     |
|---|-------------|--------------------------------------|------------|----------|-----|---------|--------------------------------------|----------|-------------|-----|
|   |             |                                      |            | *******  |     |         | <b>&lt;</b>                          |          |             |     |
| GRP 22 1-820.749.00<br>INTERFERENCE FILTER, CH 01 |             | P 23 1.<br>INTERFERENCE              | FILTER.    | CH 02    |     |         | 24 1.<br>INTERFFRENCE                | FILTER   | . TIME CODE |     |
| ELM I<br>CONNECTOR XLR, INPUT                     | JOI EL      | M 1<br>CONNECTOR XI                  | LR. INPUT  |          | J01 | ELM     | 1<br>CONNECTOR XL                    | .R. INPU | Τι          | 701 |
| PHT SIGNAL NAME COLOR LY TYPE                     | F PN        | T SIGNAL NAME                        |            | TYPE     | F   |         | SIGNAL NAME                          |          |             |     |
| 1 GNO<br>2 LINSA-01<br>3 LINSB-01                 | 1<br>2<br>3 | GND<br>LINSA-02<br>LINSB-02          |            |          |     | 1 2     | GND<br>LINSA-TC<br>LINSB-TC          |          |             |     |
| ELM 2<br>CONNECTOR XLR, OUTPUT                    | P01         | N 2<br>CONNECTOR X                   |            |          |     | THE PAR | 2<br>CONNECTOR XL                    |          |             |     |
| PNT SIGNAL NAME COLOR LV TYPE                     | F PN        | T SIGNAL NAME                        |            |          |     |         | SIGNAL NAME                          |          |             |     |
| 1 GND<br>2 LOUSA-C1<br>3 LOUSA-C1                 | 1<br>2<br>3 | GND<br>LOUSA-02<br>LOUSB-02          |            |          |     | 2       | GND<br>LOUSA-TC<br>LOUSB-TC          |          |             |     |
| ELF 3 CONNECTOR LINE FILTER, INPUT                | FL          | N 3<br>CONNECTOR L                   | INE FILTER |          | P01 | ELM     | 3                                    |          |             |     |
| PNT SIGNAL NAME COLOR LY TYPE                     | F PN        | T SIGNAL NAME                        | COLOR LV   |          |     |         | SIGNAL NAME                          | COLOR    | LV TYPF     | F   |
| 1 LINF8-01 6 D 2 KEY 3 + 0.0 S D 4 LINFA-01 0 D   | 2           | LINFB-02<br>KEY<br>+ 0.0<br>LINFA-02 | s          | D        |     | 1 2     | LINFB-TC<br>KEY<br>+ 0.0<br>LINFA-TC |          | -           |     |
| ELF 4 CONNECTOR LINE FILTER, OUTPUT               |             | N 4<br>CONNECTOR L                   | INE FILTER | , OUTPUT | P02 | ELM     | 4<br>CONNECTOR LI                    | INE FIL  | TER. OUTPUT | P02 |
| PHT SIGNAL NAME COLOR LY TYPE                     | F PN        | T SIGNAL NAME                        | COLOR LV   | TYPE     | F   | PNT     | SIGNAL NAME                          | COLOR    | LV TYPF     | 1   |
| 1 LCUFB-01 6 D 2 KEY 3 + 0.0 S D 4 LOUFA-01 D D   | 2           | LOUFB-02<br>KEY<br>+ 0.0<br>LOUFA-02 |            | D<br>D   |     | 2       | LOUFS-TC<br>KEY<br>• 0.0             | s        | D           |     |
| 4 LOUFA-01 D D                                    | 4           | LDUFA-02                             | 0          | D        |     | 4       | LOUFA-TC                             | 9        | D           |     |

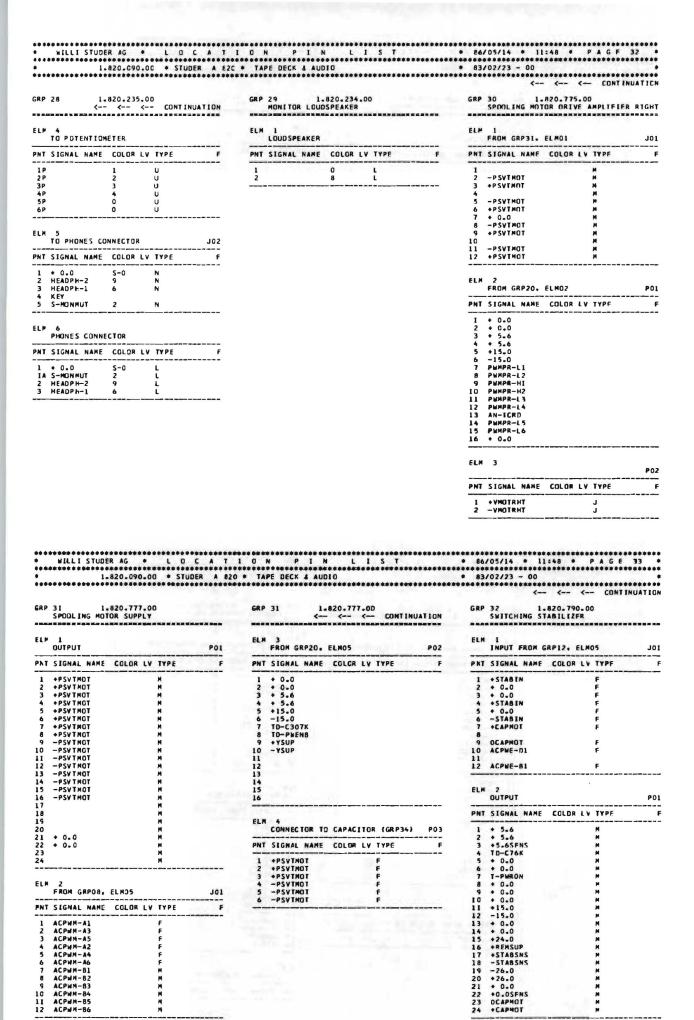
|     | ************************************** | R AG + L O (        | ER A 820 | * TAI | PE DECK 4          | UDIO             | • | * 8               | 3/02/23 - 00     |                 |     |
|-----|--|---------------------|----------|-------|--------------------|------------------|---|-------------------|------------------|-----------------|-----|
| GRP | 25<br>REMOTE CONTS                     |                     |          | GRP   |                    | < < co           |   |                   | 25               | < CON           |     |
| ELM | I<br>CONN. AUTOLO                      | CATOR, REMOTE TIMES | 1 JOT    | ELM   | CONN. PAR          | LLEL REMOTE CONT | ROL JO3                                 | 100               | CONNECTOR        | SMPTE/EBU BUS   | J05 |
| PNT | SIGNAL NAME                            | COLOR LV TYPE       | F        | PNT   | SIGNAL NAP         | E COLOR LY TYPE  |   | The second second |                  | E COLOR LY TYPE | F   |
| 2   | SHIELD                                 | 8                   |          |       | + 0.0<br>BR-REW    | 8<br>8           |   |                   | FRMGND<br>TRANSA | 8 8             |     |
|     | TR-A                                   | B                   |          |       | BR-FORW            | В                |   | 3                 | RECEIVE          | 8               |     |
|     | KEY                                    | В                   |          |       | BR-VRSPD           | 8                |   |                   | RECEIVEN         | 8               |     |
|     | + 0.0                                  | 8                   |          |       | SR-VRSPO           | В                |   |                   | SPARE            | В               |     |
| 6   |  | В                   |          |       | SR-FADRY           | 8                |   |                   | TRANSCH          | B               |     |
|     | TR-B                                   | В                   |          |       | BR-LOCST           | 8                |   |                   | TRANSB           |                 |     |
|     | SIGN.GNO                               |                     |          |       | BR-FAORY           | н                |   |                   | RECEIVA          | n               |     |
| ,   | +REMSUP                                | В                   |          |       | BR-REC<br>SR-RESET |                  |   | ~                 | FRAGNO           | н               |     |
|     |  |                     |          |       | FADI               | 2                |   | -                 |                  |                 |     |
| FIN | 2                                      |                     |          |       | FAD2               | Ř                |   |                   |                  |                 |     |
|     | CONNECTOR SY                           | NCHRONTZER          | J02      |       | IR-REFEX           | 8                |   |                   |                  |                 |     |
|     |  |                     |          |       | SR-OLOC            | Ä                |   |                   |                  |                 |     |
| PNT | SIGNAL NAME                            | COLOR LV TYPE       | F        |       | BR-PLAY            | 8                |   |                   |                  |                 |     |
|     |  |                     |          |       | BR-STOP            | 8                |   |                   |                  |                 |     |
| 1   | + 0.0                                  | В                   |          |       | SR-LIFT            | В                |   |                   |                  |                 |     |
| 2   | BR-REW                                 | В                   |          |       | SR-LGCST           | В                |   |                   |                  |                 |     |
| 3   | BR-FORW                                | В                   |          | 19    | SR-REC             | 8                |   |                   |                  |                 |     |
| 4   | BR-VRSPD                               | 8                   |          | 20    | SR-REW             | R                |   |                   |                  |                 |     |
|     | SR-VRSPD                               | 8                   |          |       | SR-FORM            | В                |   |                   |                  |                 |     |
|     | SR-REHSL                               | В                   |          |       | SR-PLAY            |                  |   |                   |                  |                 |     |
|     | OR-MVCLK                               | В                   |          |       | SR-STOP            | В                |   |                   |                  |                 |     |
|     | KEY/CDIR                               | 8                   |          |       | KEY                | 8                |   |                   |                  |                 |     |
|     | BR-REC                                 | В                   |          | 25    | +24. OREM          | В                |   |                   |                  |                 |     |
|     | OR-MYDIR<br>OR-CMCLK                   | В                   |          |       |                    |                  |   |                   |                  |                 |     |
|     | OR-SYENB                               |                     |          | F1 W  | 4                  |                  |   |                   |                  |                 |     |
|     | IR-REFEX                               |                     |          | ELM   |                    | SMPTE/EBU BUS    | J04                                     |                   |                  |                 |     |
|     | + 0.0                                  | B                   |          |       | CCHRECTOR          | 3AF1E/EBU BUS    | 304                                     |                   |                  |                 |     |
|     | BR-PLAY                                | A                   |          | PNT   | STONAL NAM         | E COLOR LY TYPE  | F                                       |                   |                  |                 |     |
|     | BR-STOP                                | 8                   |          |       |                    |                  |   |                   |                  |                 |     |
|     | SR-LIFT                                | В                   |          | 1     | FRMGND             | В                |   |                   |                  |                 |     |
| 18  | SR-MUTE                                | 8                   |          |       | TRANSA             | В                |   |                   |                  |                 |     |
|     | SR-REC                                 | В                   |          |       | RECEIVE            | В                |   |                   |                  |                 |     |
|     | SR-REW                                 | В                   |          |       | RECEIVEN           | В                |   |                   |                  |                 |     |
|     | SR-FORW                                | 8                   |          | 5     | SPARE              | В                |   |                   |                  |                 |     |
|     | SR-PLAY                                | В                   |          |       | TRANSCH            | 8                |   |                   |                  |                 |     |
|     | SR-SYOP                                | 8                   |          |       | TRANSB             | В                |   |                   |                  |                 |     |
|     | KEY                                    | В                   |          |       | RECEIVA            | В                |   |                   |                  |                 |     |
| 25  | +24. OREM                              | В                   | 300      | 9     | FRMGND             |                  |   |                   |                  |                 |     |
|     |  |                     |          |       |                    |                  |   |                   |                  |                 |     |

```
GRP 27 1.820.738.00
PARALLEL REMOTE INTERFACE
                                                                                                                                                                                                                                                                                                                                  GRP 27 1.820.738.00 

<-- <-- CONTINUATION
 GRP 26 1.820.729.00
SERIAL REMOTE INTERFACE
                                                                                                                                                                                                                                                                                                                                  FLM 2
FROM GRP20. FLM16
  FROM GRP27, ELMO1
                                                                                                                                                                  ELM 1
TO GRP26, ELMO1
  PNT SIGNAL NAME COLOR LV TYPE F
                                                                                                                                                                  PNT SIGNAL NAME COLOR LY TYPE F
                                                                                                                                                                                                                                                                                                                                    PNT SIGNAL NAME COLOR LV IYPF
                                                                                                                                                                                                                                                                                                                                  1 + 0.0
2 + 0.0
3 + 5.6
4 + 5.6
5 + REMSUP
6 + REMSUP
6 + REMSUP
7 TM-DSL5
8 TM-ISL5
9 TM-ORES
10 TM-IRES
11 TM-DRM
12 TM-IRM
13 TM-ORM
14 TM-IENB
15 T-REFEXT
6 0.0 YCU
7 TC-TCDIR
9 TM-DARRO
0 TM-IADRO
1 TM-REMIR
2 O.0 YCU
1 TM-DATA6
0.0 YCU
1 TM-DATA6
0 TM-
           + 0.0
+ 5.0
+ 5.0
+ SEMSUP
T-RL0
T-RL1
T-SL3
T-B0
T-B1
T-B2
T-B1
T-B2
T-B1
T-SL0
T-SL0
T-SL0
T-SL0
T-SL0
T-SL0
T-SL2
T-RL5
T-RL5
T-RL5
T-RL5
T-RL5
T-RL5
T-RL5
                                                                                                                                                                            + 0.C
+ 5.C
+ 5.C
- 8EMSUP
I-RL0
I-RL3
I-SD
I-BD
I-BD
I-BD
I-BD
I-BD
I-BC
I-BC
I-SL0
I-SL0
I-SL0
I-SL0
I-SL2
I-RL5
I-RL5
I-RL5
I-RL5
I-RL5
123456789101121314516171819201222324256
 ELM 2
TO GRP25, ELMO1
  PNT SIGNAL NAME COLOR LY TYPE
             SHIELD
           TR-B
TR-A
SIGN.GND
KEY
+REMSUP
+ 0.0
* MILLI STUDER AG * L O C A T I O N P I N L I S T * 86/05/14 * 11:48 * P A G F 31 *

* 1.820.C90.00 * STUDER A 82C * TAPE DECK & AUDIO * 83/02/23 - 00 * CONTINUATION*

* -- <-- <-- CONTINUATION*
                                                                                                                                                                                                                                                                                                                                 GRP 28 1.820.235.00
MONETOR CONTROL UNIT
GRP 27 1.820.738.00 C-- C-- CONTENUATION
ELM 3
TO CONNECTOR SYNCHRUNIZER
PNT SIGNAL NAME CGLOR LY TYPE
                                                                                                                                                               TO CONN. PARALLEL REMOTE CONTR.
                                                                                                                                                                                                                                                                                                                                  ELM 1
AUDIO INPUT (FROM GRP21, FLM13)
                                                                                                                                                                  PNT SIGNAL NAME COLOR LY TYPE F
                                                                                                                                                                                                                                                                                                                                   PNT SIGNAL NAME COLOR LV TYPE
                                                                                                                                                                                                                                                                                                                                    1 MONIT-01
2 + 0.0
3 INPDI-01
4 + 0.0
5 MONIT-02
6 + 0.0
7 INPDI-02
8 + 0.0
9 KEY
        + 0.0
+ 0.0
+ 0.0
BR-REM
BR-PLAY
BR-FDRW
BR-STOP
BR-VRSPO
SR-WIFI
SR-WRSPO
SR-MUTE
SR-REC
SR-REW
KEY/COIR
SR-FORM
BR-REC
SR-PLAY
OR-MYDIR
SR-SYENG
OR-SYENG
EY-COUR
SR-SYENG
OR-SYENG
EY-COUR
                                                                                                                                                                    1 2 3 4 5
                                                                                                                                                                             + O.O
SR-OLOC
BR-REM
BR-FCRH
BR-STOP
BR-VRSPD
SR-LOCST
SR-FADRY
SR-REC
BR-LOCST
SR-REM
BR-FADRY
SR-REC
SR-PEC
SR-PLAY
SR-REC
SR-PLAY
SR-RESET
SR-RESET
SR-RESET
SR-STOP
FADI
KEY
FADO
   1234567
                                                                                                                                                                6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
                                                                                                                                                                                                                                                                                                                                  10
11 T-TC/RC
12 + 0.0
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
                                                                                                                                                                                                                                                                                                                                 FROM GRP2D. ELM19
                                                                                                                                                                                                                                                                                                                                   PNT SIGNAL NAME COLOR LY TYPE
                                                                                                                                                                                                                                                                                                                                           + 0.0
+ 0.0
+ 0.0
+ 5.6
+ 15.0
- 15.0
- 15.0
T - SADA
T - SADA
T - SADA
T - SADA
T - PRE JSL
T - MRT SL
T - OT - CH2
T - OT - CH2
T - OT - CH2
T - OT - CH3
T - OT - CH3
                                                                                                                                ./.
                                                                                                                                                                  PNT SIGNAL NAME COLOR LV TYPE F
                                                                                                                                                                   1 GND
                                                                                                                                                                                                                                                                                                                                  ELM 3
CONNECTOR LOUDSPEAKER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J03
                                                                                                                                                                                                                                                                                                                                               SIGNAL NAME COLOR LV TYPE
```



| b.                                      | GRP 33 1.820.775   | .00                                     |                 | GRP   | 34   | 59.26.622   | 3  | GRP   | 36   | .820.190.00  | CONTINUATION   |
|---|--|---|-----------------|---|--|---|--|---|--|--|--|
| ,                                       | SPOOLING MOTOR DRIV  | E AMPLIFIER                             | LEFT            |   | CAPACITOR (8   | ELONGS TO   | GRP31)   | 32 8833   | TOROUF MOTO  | R. LFFT  | **********   |
| )                                       | ELP 1<br>FROM GRP31, ELMO1   |   | 701             | ELM   | 1<br>CAPACITOR   |   |  |   | 1 I  | .820.771.00  | POL  |
|   | PNT SIGNAL NAME COLOR  |   |                 |   |  | CCLCR LV  | TYPE   |   |  |  |  |
|   | 1  | M                                       |                 | 14  | *PSVTM0T   | 2   | ļ  |   | • 0.0  |  |  |
|   | 2 -PSVTMOT<br>3 +PSVTMOT   | H                                       |                 | 1B<br>1C  | +PSVTMOT<br>+PSVTMOT<br>+PSVTMOT<br>-PSVTMOT<br>-PSVTMOT<br>-PSVTMOT   | 2   | L  | 3   | + 0.0<br>+ 5.6<br>+ 5.6  |  |  |
|   | 5 -PSVTMCT<br>6 +PSVTMOT   | Ä                                       |                 | 2B<br>2C  | -PSVTMOT   | 6   | i<br>L   | 5   | •15.0<br>-15.0   |  |  |
|   | 7 + 0.0<br>E -PSVTMOT  | M                                       |                 |   |  |   |  | 7<br>8  | AN-RESI<br>TD-TML2   |  |  |
|   | 9 +PSVTMOT   | M                                       |                 | ELM   | CONNECTOR (F   |   |  | 01 10   | TO-TML 1   |  |  |
|   | 1 -PSVTMOT<br>2 +PSVTMOT   | Ä                                       |                 |   | SIGNAL NAME  | COLOR LV  | TYPE   | F<br>ELM  | 2  |  |  |
| i                                       | LM 2   |   |                 | 1 2   | +PSVTMOT<br>+PSVTMOT<br>+PSVTMOT<br>-PSVTMOT<br>-PSVTMOT<br>-PSVTMOT   | 2 2   | M<br>M   |   | FROM GRP33.  |  |  |
|   | FROM GRP20, ELMO1  |   | P01             | 4   | +PSVTMOT<br>-PSVTMOT   | 6   | H  |   |  |  | YPE F  |
|   | PNT SIGNAL NAME COLOR  | LV TYPE                                 | <u>-</u>        | 6   | -PSVIMOT   | 6   | ř  | 2   | ·VMOTLFT<br>-VMOTLFT   | 0  |  |
|   | 2 + 0.0<br>3 + 5.6<br>4 + 5.6<br>5 + 15.0<br>6 - 15.0<br>7 PMMPL-L1<br>8 PMMPL-L2<br>9 PMMPL-H2<br>1 PMMPL-H2<br>1 PMMPL-H2<br>2 PMMPL-L4<br>3 AM-ICLD<br>4 PMMPL-L5<br>5 PMMPL-L6<br>6 + 0.0  |   |                 |   |  |   |  |   |  |  |  |
| -                                       |  |   |                 |   |  |   |  |   |  |  |  |
| 1                                       | LK 3   |   | P02             |   |  |   |  |   |  |  |  |
| ,                                       | NT SIGNAL NAME COLOR I   | TURE                                    | F               |   |  |   |  |   |  |  |  |
| - 9                                     |  |   | r               |   |  |   |  |   |  |  |  |
| -                                       | 1 +VMOTLET 2 -VMOTLET  | , T 0 (                                 | <br><br>5 A T 1 | 0 N   | NIG  | Ll  | S T  | * 86/   | 05/14 * 1  | 1:48 . P   | G F 35 *   |
| -                                       | 1 +VMOTLFT<br>2 -VMOTLFT<br>2 -VMOTLFT<br>4 ************************************   | J J C C C C C C C C C C C C C C C C C C | A T 1           | TAP   | P I N  | L 1<br>************************************   | 7 2<br>************************************              | * 86/<br>**********<br>* 83/  | 05/14 * 1<br>*********************************   | 1:48 • P / *********************************   | G F 35 *   |
|   | 1 +VMOTLFT 2 -VMOTLFT  WILLI STUDER AG 1.820.090.  RP 37 1.820.190. TORQUE MOTOR, RIGHT  | .00 * STUD                              | C A T I         | TAP   | P I N  E DECK & AUD  E DECK & AUD  AUD  AUD  AUD  AUD  AUD  AUD  AUD   | L 1<br>************************************   | S T  | * 86/<br>* 83/  | 05/14 * 1<br>*********************************   | 1:48 • P / *********************************   | G F 35 *   |
|   | 1 + VMOTLET 2 - VMOTLET  MILLI STUDER AG 1.820.090.  RP 37 1.820.190. TORQUE MOTCR, RIGHT  | J J J                                   | C A T I         | GRP   | P I N ***********************************  | L 1<br>************************************   | S T  | # 86/   | 05/14 * 1<br>*********************************   | 1:48 • P /   | G F 35 +   |
| G G G                                   | 1.820.090.  TORQUE MOTOR, RIGHT TACHU SENSGR  NT SIGNAL NAME COLOR I   | J<br>J<br>J<br>                         | P01             | GRP ELM PNT   | P I N  **********************************  | L 1   | ONICS BOARDI   | # 86/   | 05/14 * 1 02/23 - 00 ************ <  | 1:48 • P /   | CONTINUATION   |
|   | 1 + VMOTLET 2 - VMOTLET 2 - VMOTLET 2 - VMOTLET 3 - VMOTLET 4 - VMOTLET 1 - 1.820 - 190. TORQUE MOTCR, RIGHT TACHU SENSGR NT SIGNAL NAME COLOR I 1 + 0.0   | J<br>J<br>J<br>                         | P01             | GRP   | P I N E DECK & AUD CONTROL  38 1. CAPSTAN MOTO FROM GRP39, SIGNAL NAME CPHASE—R  | L 1 10 10 021.695.00 R (ELECTRO   | S T  | # 86/<br># 83/<br>####################################  | 05/14 • 1 02/23 - 00   | 1:48 • P / · · · · · · · · · · · · · · · · · ·   | CONTINUATION   |
| G G = E                                 | 1 + VMOTLET 2 - VMOTLET 2 - VMOTLET 2 - VMOTLET 3 - VMOTLET 4 - 1.820.990. TORQUE MOTCR, RIGHT 1 - 1.820.771. TACHU SENSOR NT SIGNAL NAME COLOR I 1 + 0.0 2 + 0.0 3 + 5.6 4 + 5.6  | J<br>J<br>J<br>                         | P01             | GRP  ELM  PNT  1  2  3  | P I N E DECK & AUD  38 1. CAPSTAN MOTO  1 FROM GRP39, SIGNAL NAME  | L 1 10 021.695.00 R (ELECTRO  ELMD2 COLDR LV  | DNICS BOARD)  TYPE                                       | # 86/<br># 83/<br>####################################  | 05/14 * 1 *********************************  | 1:48 • P / · · · · · · · · · · · · · · · · · ·   | CONTINUATION   |
| G G G                                   | 1 + VMOTLFT 2 - VMOTLFT  | J<br>J<br>J<br>                         | P01             | GRP ELM PNT 1 2 3 4 5 6   | P I N E DECK & AUD CAPSTAN MOTO  TROM GRP39, SIGNAL NAME CPHASE-R GPHASE-T CPHASE-S TC-HALL1 +15.0   | L 1 10 021.695.00 R (ELECTRO  ELMD2 COLDR LV  | ONICS BOARDI TYPE F F F F F F F F F                      | # 86/<br># 83/<br># 83/<br># 83/<br># 83/<br># 83/<br># 83/<br># 83/<br># 81/<br># 83/<br># 83/ | 05/14 • 1  02/23 - 00  C-  38 1  C-  4 STATOR IMIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-T                    | 1:48 • P /   | CONTINUATION   |
| G = E                                   | 1 + VMOTLET 2 - VMOTLET 3 - VMOTLET 3 - VMOTLET 1 - 0.20 - 0.00 1 - 0.00 2 - 0.00 3 - 5 - 6 4 - 5 - 6 5 - 15 - 0 6 - 15 - 0 7 - AN-RES2 8 - TO-TMR2  | J<br>J<br>J<br>                         | P01             | GRP ELM PNT 1 2 3 4 5 6 7 8   | P I N E DECK & AUD CAPSTAN MOTO TROM GRP39, SIGNAL NAME CPHASE-R CPHASE-S TC-HALL1 +15.0 TC-HALL2 TO-TCM1  | L 1 10 021.695.00 R (ELECTRO  ELMD2 COLDR LV  | S T  | # 86/<br># 83/<br># 83/<br># 83/<br># 83/<br># 83/<br># 83/<br># 81/<br># 81/<br># 83/<br># 83/ | 05/14 • 1 02/23 - 00 •••••••   | E FIELD)  COLOR LV T  2 L 0 L 9 L  | CONTINUATION  CONTINUATION  PF F  FIFLD)               |
| G                                       | 1 + VMOTLET 2 - VMOTLET 2 - VMOTLET 2 - VMOTLET 3 - VMOTLET 4 - VMOTLET 1 - 820 - 090 1 - 820 - 090 1 - 820 - 190 1 - 70RQUE MOTGR, RIGHT 1 - 1 - 820 - 771 1 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -  | J<br>J<br>O STUDE                       | P01             | GRP ELM PNT 1 2 3 4 5 6 7 7 8 9 9 10  | P I N EE DECK & AUD CAPSTAN MOTO FROM GRP39, SIGNAL NAME CPHASE-T CPHASE-T CPHASE-S TC-HALL1 +15.0 TC-HALL2  | COLDR LV  | DINICS BOARD)  TYPE  F F F F F F F F F F F F F F F F F F | # 86/<br># 83/<br>####################################  | 05/14 • 1 1 02/23 - 00   | E FIELD)  COLOR LV T  2 L 0 L 9 L  | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G G G G G G G G G G G G G G G G G G G | 1 + VMOTLFT 2 - VMOTLFT  | J<br>J<br>O STUDE                       | P01             | GR P  ELM  PNT  1 2 3 4 5 6 7 8 9 10  | P I N E DECK & AUD CAPSTAN MOTO SIGNAL NAME CPHASE-T CPHASE-T CPHASE-S TC-HALL1 +15.0 TC-HALL2 TO-TCM1 + 5V TC-HALL3   | COLDR LV  | JO TYPE F F F F F F F F F F F F F F F F F F F            | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 1 02/23 - 00   | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| G G G G G G G G G G G G G G G G G G G   | 1 + VMOTLFT 2 - VMOTLFT  | J<br>J<br>.00 • \$7U08                  | P01             | GR P  ELM  PNT  1  2  3  4  5  6  7  8  9  10  11  12  ELM  | P I N E DECK & AUD CAPSTAN MOTO  I GRP39, SIGNAL NAME CPHASE-R GPHASE-T CPHASE-S TC-HALL1 +15.0 TC-HALL2 10-TCM1 + 5V TC-HALL3 TO-TCM2 + 0.0   | L 1 10 10 021.695.00 R (ELECTRC COLDR LV 2 9 0  | ONICS BOARDI  TYPE  F F F F F F F F F F F F F F F F F F  | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| G =                                     | 1 + VMOTLET 2 - VMOTLET 3 - VMOTLET 4 - VMOTLET 4 - VMOTLET 5 - VM | J J J O O O O O O O O O O O O O O O O O | P01 F           | GRP  ELM  PNT  1 2 3 4 5 6 7 8 9 10 11 12 ELM   | P I N E DECK & AUD CAPSTAN MOTO  SIGNAL NAME CPHASE-T CPHASE-S TC-HALL1 +15.0 TC-HALL2 TO-TCM1 +5 V TC-HALL3 TO-TCM2 + 0.D  Z TACHO SENSOR   | COLDR LV COLDR LV O21.696.00 UNIT (M16  | JO TYPE F F F F F F F F F F F F F F F F F F F            | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 2 - VMOTLFT 2 - VMOTLFT  MILLI STUDER AG 1.820.090.  TORQUE MOTGR, RIGHT  LM 1 1.820.771. TACHU SENSGR  NT SIGNAL NAME COLOR I  1 + 0.0 2 + 0.0 3 + 5.6 4 + 5.6 5 + 15.0 6 - 15.0 7 AN-RES2 8 TO-TMR1 G  LM 2 FROM GRPJO, ELM 03 NT SIGNAL NAME COLOR I  | J J J O O O O O O O O O O O O O O O O O | P01 F           | GR P  ELM  PNT  1 2 3 4 5 6 7 8 9 10 11 12 ELM  PNT   | P I N EE DECK & AUD EE DECK &  | L 1  10  10  21.695.00  R (ELECTRO  COLDR LV  2  9  0  021.696.00  UNIT (MIF                          | ONICS BOARD)  TYPE  F F F F F F F F F F F F F F F F F F  | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | GRP  ELM  PNT  1 2 3 4 5 6 7 8 9 10 11 12 ELM  PNT  | P I N  E DECK & AUD  CAPSTAN MOTO  I GRP39,  SIGNAL NAME  CPHASE-T  CPHASE-S  TC-HALL1  +15.0  TC-HALL2  TO-TCM1  + 5V  TC-MALL3  TO-TCM2  + 0.0  2  1. TACHG SENSOR   | L 1   | ONICS BOARD)  TYPE  F F F F F F F F T TYPE  U U U        | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | GR P  ELM  PNT  12  3  6  7  8  9  10  11  12  ELM  PNT  12   | P I N  E DECK & AUD  CAPSTAN MOTO  I GRP39,  SIGNAL NAME  CPHASE-T  CPHASE-S  TC-HALL1  +15.0  TC-HALL2  TO-TCM1  + 5V  TC-MALL3  TO-TCM2  + 0.0  2  1. TACHG SENSOR   | L 1   | JONICS BOARD)  TYPE  F F F F F F F T TYPE  U             | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | GR P  ELM  PNT  1 2 3 4 5 6 7 8 9 10 11 12 ELM  PNT  1 2 3 4 ELM  | P I N  E DECK & AUD  CAPSTAN MOTO  I GRP39,  SIGNAL NAME  CPHASE-T  CPHASE-S  TC-HALL1  +15.0  TC-HALL2  TO-TCM1  + 5V  TC-MALL3  TO-TCM2  + 0.0  2  1. TACHG SENSOR   | COLOR LV  021.695.00  R (ELECTRO  COLOR LV  2 9 0  021.696.00 UNIT (MIF  COLOR LV  3 4 5 6            | ONICS BOARD)  TYPE  F F F F F F F T TYPE  U U U          | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># ELM<br># PNT  | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | ELM PNT 1 2 3 4 4 ELM PNT 1 2 3 4 4 ELM PNT   | P I N  PE DECK & AUD  CAPSTAN MOTO  CAPSTAN MOTO  I FROM GRP39,  SIGNAL NAME  CPHASE-R CPHASE-S TC-HALL1  15.0 TC-HALL2 TO-TCM1  5 V TC-HALL3 TO-TCM2  0.0  2 1. TACHO SENSOR  SIGNAL NAME  3 1-HALL SENSOR  SIGNAL NAME   | L 1  ***********************************  | ONICS BOARDI  TYPE  F F F F F F F F F F F F F F F F F F  | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># 1   | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | GR P  ELM  PNT  1  2  3  4  5  6  7  8  9  10  11  12  ELM  PNT  1  2  3  4  ELM  | P I N E DECK & AUD BE DECK & A | L 1   | ONICS BOARDI  TYPE  F F F F F F F F F F F F F F F F F F  | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># 1   | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | GR P  ELM  PNT  12  3  6  7  8  9  10  11  12  3  4  ELM  PNT  12  3  4  ELM  PNT | P I N  PE DECK & AUD  CAPSTAN MOTO  CAPSTAN MOTO  I FROM GRP39,  SIGNAL NAME  CPHASE-R CPHASE-S TC-HALL1  15.0 TC-HALL2 TO-TCM1  5 V TC-HALL3 TO-TCM2  0.0  2 1. TACHO SENSOR  SIGNAL NAME  3 1-HALL SENSOR  SIGNAL NAME   | COLOR LV  021.696.00  021.696.00  UNIT (HIS   | TYPE  F F F F F F F F F F F F F F F F F F                | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># 1   | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  CONTINUATION  PF F  FIFLO) |
| 6 G                                     | 1 + VMOTLFT 2 - VMOTLFT 3 1.820.090. 1.820.090. 1.820.090. 1.820.171. 1.820.771. | J J J O O O O O O O O O O O O O O O O O | P01 F           | C N N N N N N N N N N N N N N N N N N N   | P I N  PE DECK & AUD  CAPSTAN MOTO  CAPSTAN MOTO  I FROM GRP39,  SIGNAL NAME  CPHASE-R CPHASE-S TC-HALL1  15.0 TC-HALL2 TO-TCM1  5 V TC-HALL3 TO-TCM2  0.0  2 1. TACHO SENSOR  SIGNAL NAME  3 1-HALL SENSOR  SIGNAL NAME   | COLOR LV  021.695.00  021.695.00  COLOR LV  2  000.00  021.697.00  021.697.00  021.697.00  021.697.00 | JONICS BOARD)  TYPE  F F F F F F F F F F F F F F F F F F | # 86/<br># 83/<br># 83/<br># 6RP<br># ELM<br># PNT<br># 1   | 05/14 • 1 02/23 - 00  C- 38 1 C-  STATOR (HIR SIGNAL NAME CPHASE-R CPHASE-S CPHASE-S GROUND CONN SIGNAL NAME | E FIELD)  COLOR LV TO  COLOR LV | CONTINUATION  CONTINUATION  (PF F  FIFLO)  PF F        |

| GRP   | 39 1.<br>CAPSTAN MUTO  | 820.774.00 | 0                                     | ***** | GRP                   | 39            | 1.8    | 20.774.00 | )    | MOITAU | GRP | /02/23 - 00<br><<br>40 1<br>BRAKE ASSEM | - <<br>.080.230 | < co    |
|---|--|------------|---------------------------------------|-------|-----------------------|---------------|--------|-----------|------|--------|-----|---|-----------------|---------|
| ELÞ   | I<br>FROM GRP20,   | EL MOR     |                                       | 901   | ELM                   | 3<br>FROM     | GRP20. | ELM71     |      | PD3    | ELM | 1<br>BRAKE SOLEN                        | 010             |         |
| PNT   | SIGNAL NAME  | CGLOR LV   | TYPE                                  | F     | PNT                   | SIGNAL        | NAME   | COLOR LV  | TYPE | F      | PNI | SIGNAL NAME                             | COLDR           | LV TYPE |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>11<br>12<br>13<br>14 | * 0.0<br>• 0.0<br>• 5.6<br>• 5.6<br>• 15.0<br>- 15.0<br>AN-CSPDC<br>TD-TCM1<br>• 0.0<br>TD-TCM2<br>T-SPDSL1<br>T-SPDSL2<br>TC-CPREF<br>TC-CAPDC<br>TD-TCAPDC |            |                                       | POZ   | 1<br>2<br>3<br>4<br>5 | OCAPHO +CAPHO | Ī      |           | н    |        | 3   | +24-0<br>K-BRAKEL                       |                 |         |
| PNT   | SIGNAL NAME  |            |                                       |       |                       |               |        |           |      |        |     |   |                 |         |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9                                     | CPHASE-R CPHASE-T CPHASE-S TC-HALL1 -15.0 +15.0 TC-HALL2 TD-TCM1 + 5V TC-HALL3 TD-TCM2   |            | N N N N N N N N N N N N N N N N N N N |       |                       |               |        |           |      |        |     |   |                 |         |

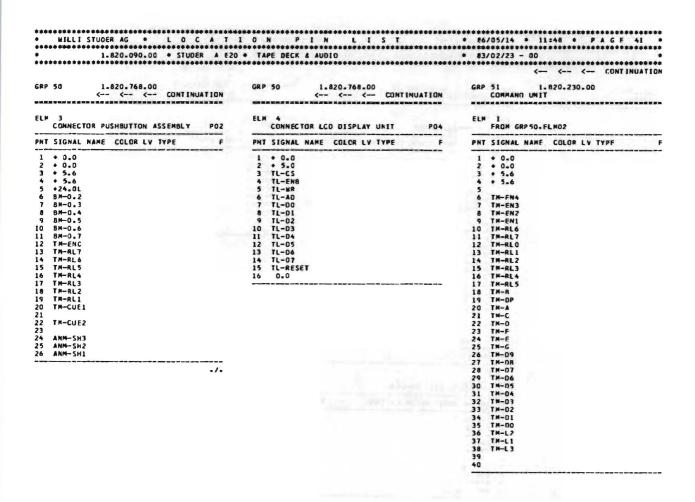
| • WILLI STUDER AG • L Q C A T                | I D N P I N L I S T   |   |
|--|---|---|
| • 1.820.090.D0 • STUDER A 620                |   | # 83/02/23 - 00 # ********************************                    |
| GRP 41 1-080-240-00<br>8RAKE ASSEMBLY, RIGHT | GRP 42 1.820.772.00<br>TAPE TENSION SEMSOR. LEFT                    |   |
| ELM 1<br>BRAKE SOLENOID                      | FROM GRP20, ELM12 PO1   | FROM GRP20. ELM13 PO1   |
| PNT SIGNAL NAME COLOR LY TYPE F              | PNT SIGNAL NAME COLOR LY TYPE F                                     | PNT SIGNAL NAME COLOR LY TYPF F                                       |
| 1 +24.0 7 4<br>2 K-BRAKER 4 M                | 1 + 0.C<br>2 + 0.C<br>3 + 5.6<br>4 + 5.6<br>5 +15.C<br>6 -15.C<br>7 | 1 + 0.0<br>2 + 0.0<br>3 + 5.6<br>4 + 5.6<br>5 + 15.0<br>6 - 15.0<br>7 |

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\* 1.82C.090.00 \* STUDER A 220 \* TAPE OECK & AUDIO \* 83/02/23 - 00 \* CANTINUATION 9 48 1.820.240.00 <--- <-- CONTINUATION GRP 47 1.820.773.00 TAPE LIFTER CONTROL, RIGHT GRP 48 1.820.240.00
PUSHBUTTON ASSEMBLY FROM GRP20, ELMO8 FROM GRPSO, ELMO3 ELM 3 WIRE FIELD PNT SIGNAL NAME COLOR LV TYPE F PNT SIGNAL NAME COLDR LY TYPE PNT SIGNAL NAME COLOR LY TYPE PAT SIGNAL

1 + 0.0
2 + 0.0
3 + 5.6
4 + 5.6
5 + 26.0
7
8
9
1C
11 TD-RAI
12 TD-RAI
13 TD-RAI
15 TD-RA
16 1 +24-0L 2 +24-0L 3 BM-0.7 4 BM-0.6 5 BM-0.6 7 BM-0.2 9 BM-0.2 1 + 0.C 2 + 0.0 3 + 5.6 4 + 5.6 5 + 24.0L 6 BM-0.2 7 BM-0.3 8 BM-0.4 9 BM-0.5 10 BM-0.5 11 BM-0.7 12 TM-ENO 13 TM-RL7 14 TM-RL6 15 TM-RL4 17 TM-RL4 17 TM-RL3 18 TM-RL2 19 TM-CUE1 21 TM-CUE1 22 TM-CUE2 23 ANM-SH2 26 ANM-SH2 TD-RARP1 TD-RARC2 TD-RARP2 TO-RARC1 TD-RAREN TM-CUE2 ELM 2 CONNECTOR EDIT ASSEMBLY PNT SIGNAL NAME COLOR LV TYPE 1 + 0.0 2 + 0.0 3 + 5.0 4 TM-END 5 TM-CUE1 6 TM-RL1 7 TM-CUE2 8 ANM-SH3 10 ANM-SH3

| P 49 1 820 250 00                            | GB.  |                           |      | 6RP 50 1.820.768.00 C— CONTINUATIO |
|--|------|---------------------------|------|------------------------------------|
| M 1<br>FROM GRP48. ELMO2                     | EL   | M 1<br>FROM GRP20, ELM15  | P01  | FLM 2<br>CONNECTOR COMMAND UNIT PA |
| T SIGNAL NAME COLOR LV TYPE                  | F PN | T SIGNAL NAME COLOR LV TY | PE F | PNT SIGNAL NAME COLOR LY TYPE      |
| + 0.0  |      | + 0.C                     |      | 1 + 0.0                            |
| + 0.0  | 2    | + 0.0                     |      | 2 + 0.0                            |
| + 5.0  |      | + 5.6                     |      | 3 + 5.6                            |
| TM-ENO                                       |      | + 5.6                     |      | 4 + 5.6                            |
| TM-CUE1<br>TM-RL1                            |      | +24.0<br>+24.0            |      | 0 TM-EN4                           |
| TM-CUE2                                      |      | TM-05L4                   |      | 7 TM-FN3                           |
| ANM-SH1                                      |      | TM-ISL4                   |      | 8 TM-EN2                           |
| ANM-SH3                                      |      | TM-DRES                   |      | 9 TM-FN1                           |
| ANM-SH2                                      | 10   | TM-IRES                   |      | 1C TM-RL6                          |
|  |      | TM-ORW                    |      | II TM-RL7                          |
|  |      | TM-IRW                    |      | 12 TM-RLO                          |
| H 2  | 13   | TM-DENB                   |      | 13 TM-RL1<br>14 TM-RL2             |
| WIRE FIELD                                   | 12   | 1M-1EMB                   |      | 15 TM-RL3                          |
| MIRE FIELD T SIGNAL NAME COLOR LY TYPE + 5.0 | F 16 | TH- IADR2                 |      | 16 TM-RL4                          |
|  | 17   | TM-DAOR1                  |      | 17 TM-RL5                          |
| + 5.D  | 18   | TM-IADR1                  |      | 18 TM-B                            |
| TM-ENG                                       | 19   | TH-DADRO                  |      | 19 TM-OP                           |
|  |      | TM-IADRO                  |      | 20 TM-A                            |
| TM-RL1                                       |      | TH-SHIR                   |      | 21 TH-C                            |
| + 0.0  |      | 0.0 VCu                   |      | 22 TM-D<br>23 TM-F                 |
|  |      | TM-KBIR<br>O-O VCU        |      | 24 TH-E                            |
|  |      | TH-DATA7                  |      | 25 TH-G                            |
|  |      | 0.0 VCU                   |      | 26 TM-09                           |
|  |      | TM-DATA6                  |      | 27 TM-08                           |
|  |      | 0.0 VCu                   |      | 28 TM-D7                           |
|  |      | TM-DATAS                  |      | 29 TM-D6                           |
|  |      | 0.0 VCu                   |      | 30 TH-D5                           |
|  |      | TH-DATA4                  |      | 31 TM-04<br>32 TM-03               |
| 2  |      | O.O VCU<br>TM-DATA3       |      | 32 TM-03                           |
|  |      | 0-0 VCU                   |      | 34 TM-01                           |
|  |      | TM-DATA2                  |      | 35 TM-DO                           |
|  |      | 0.0 VCU                   |      | 36 TM-L2                           |
|  | 37   | TH-DATA1                  |      | 37 TM-LI                           |
|  |      | 0.0 VCU                   |      | 38 TM-L3                           |
|  |      | TM-OATAO                  |      | 39                                 |
|  | 40   | 0.0 VCu                   |      | 40                                 |



GRP 52 1.82C.233.0C LCD DISPLAY UNIT GRP 59 1.820.737.00 FUSE/SUPPLY FAILURE DETECTOR GRP 60 HEAD RLDCK ASSEMBLY. 2 CH. TIME CODE FROM GRP50, ELMO4 ELM 1 FROM GRP20, ELM14 ELM 1 HEAD BLOCK CONNECTOR PNT SIGNAL NAME COLOR LY TYPE F PNT SIGNAL NAME COLOR LY TYPE PHT SIGNAL NAME COLOR LY TYPE + 0.0 + 5.0 TL-CS TL-ENB TL-4R TL-40 TL-00 TL-01 TL-02 TL-03 TL-04 TL-05 TL-07 TL-07 TL-07 1 REPRE-01 2 REPRO-C1 3 + 0.0 +CAPMOT 6 +24 - C - STABSNS T - SUPVON + STABSNS + STABSNS + 5 - 6 + 0 - 0 - 0 - 15 - C + 26 - C - 26 - C +15-0 + 5-6 ERACS-02 + C-0 REPHL-TC RECHL-TC ERAHM-01 ERAHM-01 ERAHM-01 ERAHM-02 ERAHM-02 FREPRE-02 REPRE-02 + 0-0 0 3 3 5 5 3 5 RECHH-07 RECHL-02 6 REPHH-TC RECHH-TC ERAHH-TC ERAHM-02 ERAHL-02 ERAHH-02 ERAHO-02

GRP 70 1.820.794.00 DISTRIBUTION BOARD 1.820.794.00 <-- <-- CONTINUATION GRP 70 C-- C-- CONTINUATION ELM 2 FROM GRP20, ELM17 ELM 1 FROM GRP20. ELM18 ELM 2 RESERVE PNT SIGNAL

1 + 0.0
2 + 0.0
3 + 5.6
4 + 5.6
5 + 15.0
6 - 15.0
7 T-SADA
8 T-SADA
9 T-SADC
0 T-READSL
1 T-MTSL
1 T-DT-CH1
T-DT-CH3
T-DT-CH3
T-DT-CH3
T-DT-CH3
T-DT-RFS PNT SIGNAL NAME COLOR LV TYPE PNT SIGNAL NAME COLOR LV TYPE PNT SIGNAL NAME COLOR LY TYPE 1 + 0.0 2 + 5.6 3 + 15.0 4 T-SADA 5 T-SADC 6 T-MRTSL 7 T-DT-MP 9 10 11 12 13 + 0.0 14 + 0.0 15 + 5.6 16 -15.0 17 T-SADB 18 T-REACSL 19 T-DT-RPI 20 T-DT-RPI 21 T-DT-RPS 22 23 + 0.0 25 + 24.0 1 + 0.C 2 + 0.0 3 + 5.6 4 + 5.6 5 + 15.0 6 - 15.C 7 T-SADB 9 T-SADC 10 T-READSL 11 T-WRISL 12 T-DT-CH2 14 T-DT-CH2 14 T-DT-CH2 15 T-DT-HP 16 T-DT-HP 18 19 20 + 0.C 21 T-VARSPO 22 + 0.C 23 T-REFEXT 24 + 24.0 25 + 0.C 26 + 0.C + 0.0 T-VARSPD + 0.0 T-REFEXT +24.0 + 0.0 + 0.0 ELF 3 REPROCUCE PREAMPLIFIER PNT SIGNAL NAME CCLOR LV TYPE +15.0 REPRE-01 REPRO-01 + 0.0 + 0.0 REPRO-02 REPRE-02 -15.0 REPHL-01 REPHL-02 REPHL-02

| RP 70 1.82C.794.00           |          |                           |        | < < CONTINUATION   |
|------------------------------|----------|---------------------------|--------|--|
| < < CONTI                    | INUATION | < < CONTINUA              | ATION  | P 70 1.820.794.00 < < CONTINUATIO                            |
|                              | *******  |                           |        | *4********************                                       |
| LF 3<br>RESERVE              | PO3      | 5<br>COMMANDS CH D1       | PO5 FL | M 7 COMMANDS MONITOR AMPLIFIER P T SIGNAL NAME COLOR LV TYPE |
| NT SIGNAL NAME COLOR LY TYPE | F PNT    | SIGNAL NAME COLCR LV TYPE | F PK   | T SIGNAL NAME COLOR LV TYPF                                  |
| 1 + 0.0                      | 1        | + 0.C                     | 1      | + 0.0  |
| 2 + 0.0                      |          | • 0.0                     |        | + C.O  |
| 3 + 5.6                      |          | + 5.6                     |        | + 5.6  |
| 4 + 5.6<br>5 +15.0           |          | + 5.6<br>+15.0            |        | + 5.6<br>+15.0   |
| 6 -15.0                      |          | -15.0                     |        | -15.0  |
| 7 T-SADA                     |          | T-SADA                    |        | T-SADA   |
| 8 T-SADB                     |          | T-SADB                    |        | T-SADB   |
| 9 T-SADC                     | 9        | T-SADC                    | 9      | T-SAOC   |
| O T-READSL                   |          | T-READSL                  |        | T-RFADSL   |
| 1 T-WRTSL                    |          | T-WRTSL                   |        | T-WRTSL  |
| 2 T-DT-MP                    |          | T-DT-CH1                  |        | T-DT-CH1   |
| 3 T-REFEXT<br>4 + 3.0        | 13<br>14 |                           |        | T-DT-CH2   |
| 5 T-VARSPO                   | 15       |                           |        | T-DT-CH3<br>T-DT-MP  |
| 6 +24.0                      |          | +24.0                     |        | + 0.0  |
| LF 4<br>COMMANOS CH 03       |          | 6<br>COMMANDS CH 02       |        | M 8 YU-METER CH 01. AUDIO J                                  |
| NT SIGNAL NAME COLOR LV TYPE | F PNT    | SIGNAL NAME COLCR LY TYPE |        | T SIGNAL NAME COLOR LY TYPE                                  |
| 1 + 0.0                      |          | + O.C                     | 1      | + 0.0  |
| 2 + 0.0                      |          | + O.C                     |        | LOUFA-01   |
| 3 + 5.6                      |          | • 5.6                     |        | LOUFB-01   |
| 4 + 5.6                      |          | * 5.6                     |        | + 0.0  |
| 5 +15.0<br>6 -15.0           |          | *15.C                     |        | INPOI-01   |
| 7 T-SADA                     |          | -15.0<br>T-SADA           |        | INPAD-01<br>+ 0.0  |
| 8 T-SADB                     |          | T-SAOB                    |        | TAPA0-01   |
| 9 T-SADC                     | 9        | T-SADC                    |        | TAPHS-01   |
| C T-READSL                   | 10       | T-READSL                  |        | KEY  |
| 1 T-WRTSL                    |          | T-MRTSL                   |        |  |
| 2 T-DT-CH3                   |          | T-DT-CH2                  |        | •  |
| 3                            | 13       |                           |        |  |
| 4                            | 14       |                           |        |  |
| 5                            | 15       |                           |        |  |
| 6 +24.0                      | 16       | +24.0                     |        |  |

| ***   |  | ******  | **********  | *************          |     |   | <b>&lt;</b>  |                                      |                                       |      |
|---|--|---|---|------------------------|-----|---|--|--------------------------------------|---------------------------------------|------|
|   | 70 1.820.794.30<br>< < CONTINUATION  |   |   | 820.794.00<br>< < CONT |     | GRP   | 71 1.<br>MONITOR UNIT  | 820-580-0                            | 0                                     |      |
|   | 9<br>AUDIO CH 01 (FROM GRP21, ELMII) JO2   | ELM   | FROM GRP21.   | ELM13                  | J05 | ELM   |  |                                      |                                       |      |
| PNT   | SIGNAL NAME COLOR LY TYPE F  | PNT   | SIGNAL NAME   | COLOR LY TYPE          |     |   | SIGNAL NAME  |                                      |                                       |      |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9             | + 0.0<br>LGUFA-01<br>LOUFB-01<br>+ 0.0<br>INPD1-01<br>INPD1-01<br>INPAD-01<br>+ 0.0<br>TAPAD-01<br>TAPYS-01<br>KEY | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10 | #ONIT-01<br>+ 0.C<br>#ONIT-02<br>+ 0.0  |                        |     | 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9                      | MDNIT-01<br>• 0.0<br>INPDI-01<br>• 0.0<br>MONIT-02<br>• 0.0<br>INPDI-02<br>• 0.0<br>KEY<br>T-TC/RC<br>• 0.0                      | 9<br>5<br>9<br>5<br>9<br>5<br>9<br>5 | N N N N N N N N N N N N N N N N N N N | COTO |
|   | 10 VU-METER CH 02, AUDIO J03 SIGNAL NAME COLOR LY TYPE F   |   | 13<br>MCNITOR AMPL  | IFIER. AUDIO           | J06 |   | 2<br>FROM GRP70.   |                                      |                                       | P01  |
| 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br><br>PAT | TAPMS-02 KEY  11 AU910 CH U2 (FRCM GRP21, ELM12) J04 SIGNAL NAME CGLOR LV TYPE F  + 0.0                            | PNT 1 2 3 4 5 6 7 8 9 10 11                     | SIGNAL NAME  MONIT-01  + 0.0  INPDI-01  + 0.C  MONIT-02  + 0.C  INPOI-02  + 0.C  KEY  T-TC/RC | COLOR LY TYPE          | f   | PNT 1 2 3 4 5 6 7 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | SIGNAL NAME  + 0.0 + 0.0 + 5.6 + 5.6 + 15.0 - 15.0 T-SADA T-SADB T-SADC T-RADSL T-MATSL T-DT-CH2 T-OT-CH2 T-OT-CH3 T-DT-MP + 0.0 | COLOR LY                             | TYPF                                  |      |
| 3<br>4<br>5<br>6<br>7                                 | LQUFA-02<br>+ 0.0<br>INPDI-02<br>INPAD-02<br>+ 0.0<br>TAPAD-02   |   |   |                        |     | PNT   | 3<br>CONNECTOR LO<br>SIGNAL NAME   | COLOR LV                             | TYPE                                  | Jo   |
| 9   | TAPHS-02<br>KEY  |   |   |                        |     | 1<br>2<br>3   |  | 8<br>0                               | N<br>N                                |      |

| SIGNAL NAME | COLOR  | HI   | ASY       | GRP  | ELM  | PNT  | s   | LV  | TYPE    | DESCRIPTION OF ELEMENT  |   | REMARK    | ELEMENT NR.            |
|-------------|--------|------|-----------|--|--|--|-----|-----|---------|---|---|-----------|------------------------|
| 0.0         |        |      |           | 50<br>52   | 1  | 16   | -   |     |         | CONNECTOR LCO DISPLAY UNIT<br>FROM GRP50. ELMO4   | P04   |           |                        |
| 0.0         | 0      | _    |           | 11   | 1  | 4  | -   |     | L       | RECTIFIER   | OZO1  |           | 70.01.023              |
|             | 0      |      |           | 11   |  | 3  |     |     | L<br>L  | RECTIFIER<br>CAPACITOR  | CO1   |           | 70.01.023<br>59.26.710 |
|             | ŏ      |      |           | 12   | 2  | 2  |     |     | ì       | CAPACITOR   | C02   |           | 59.26.710              |
|             | 0      |      |           |  | 3  | 1  |     |     | L       | CAPACITOR   | C03   |           | 59.26.710              |
|             | 0      |      |           | 12   | 5  | 3  |     |     | *       | CONNECTOR TO GRP32. ELMOI<br>CONNECTOR TO GRP32. ELMOI  | POI   |           |                        |
|             | 0      |      |           | 12   | 5  | 5  |     |     | M.      | CONNECTER TO GRP32. FLMO1<br>FROM GRP31. ELMO1  | P01   |           |                        |
|             | 4      |      |           |  | 1  |  |     |     | F       | FROM GRP31. ELMO1   | 701   |           |                        |
|             | 4      |      |           |  | 3  | 7  |     |     | F       | TO GRP33. ELMOI   | POI   |           |                        |
|             | 0      |      |           | 18   | 3  | 7  |     |     | F       | TO GRP30. ELMO1<br>From Grp32. ELMO2  | P02   |           |                        |
|             | ŏ      |      |           | 19   | 3<br>1<br>1<br>1<br>1<br>1   | 6  |     |     | F       | FROM GRP32. ELMO2   | 101   |           |                        |
|             | 0      |      |           | 19   | 1  | 8  |     |     | E       | FROM GRP32. ELMO2<br>FROM GRP32. ELMO2  | 701   |           |                        |
|             | ŏ      |      |           | 19   | î  | 10   |     |     | F       | FROM GRP32. ELMO2   | J01   |           |                        |
|             | 0      |      |           | 19   | 1  | 13   |     |     | F       | FROM GRP32. EL MOZ  | 701<br>701  |           |                        |
|             | ŏ      |      |           | 19<br>19   | 1 2 2 2 2  | 21   |     |     | F       | FROM GRP32. ELMO2<br>FROM GRP32. ELMO2  | J01   |           |                        |
|             | 0      |      |           | 19   | 2  | 5  |     |     |         | TO GRP21. ELMO2   | POI   |           |                        |
|             | 0      |      |           | 19   | 2  | e<br>8   |     |     | M<br>M  | TO GRP21. ELMO2<br>TO GRP21. ELMO2  | PO1   |           |                        |
|             | ā      |      |           | 14   | 2  | 4  |     |     | H       | TO GRP21. ELMO2   | P01   |           |                        |
|             | C      |      |           | 19   | 2  |  |     |     | č       | TO GRP21. ELMO2<br>TO GRP21. ELMO2  | PO1   |           |                        |
|             | ŏ      |      |           | 19   | 2  |  |     |     | Ä       | TO GRP21. ELNO2   | POI   |           |                        |
|             | 0      |      |           | 19<br>20   | 2  | 21   |     |     | M       | TO GRP21. ELMO2<br>SPOOLING MOTOR DRIVE AMP. LEFT   | PO1   |           |                        |
|             |        |      |           | 20   |  | 2  |     |     |         | SPOOLING MOTOR DRIVE AMP. LEFT  | POI   |           |                        |
|             |        |      |           | 20   | 1  |  |     |     |         | SPOOLING MOTOR DRIVE AMP. LEFT  | POI   |           |                        |
|             |        |      |           | 20   | 2  | 2  |     |     |         | SPOOLING MOTOR DRIVE AMP. RIGHT<br>SPOOLING MOTOR DRIVE AMP. RIGHT  |   |           |                        |
|             |        |      |           | 20   | 2  | 16   |     |     |         | SPOOLING MOTOR DRIVE AMP. RIGHT   | PO2   |           |                        |
|             |        |      |           | 2C<br>20   | 3  | 1 2  |     |     |         | CAPSTAN MOTOR DRIVE AMPLIFIER CAPSTAN MOTOR DRIVE AMPLIFIER   | P03   |           |                        |
|             |        |      |           | 20   | 3  | 9  |     |     |         | CAPSTAN MOTOR DRIVE AMPLIFIER   | PO3   |           |                        |
|             |        |      |           | 2C<br>2C   | 3  | 11   |     |     |         | CAPSTAN MOTOR DRIVE AMPLIFIER CAPSTAN MOTOR ORIVE AMPLIFIER   | P03   |           |                        |
|             |        |      |           | 20   | 3  |  |     |     |         | CAPSTAN MOTOR DRIVE AMPLIFIER   | P03   |           |                        |
|             |        |      |           | 20   | 4  | 1 2  |     |     |         | PAR. CONT. INT. SYNCHRONIZER PAR. CONT. INT. SYNCHRONIZER   | P04   |           |                        |
|             |        |      |           | 20   | 4  | 9  |     |     |         | PAR. CONT. INT. SYNCHRONIZER  | P04   |           |                        |
|             |        |      |           | 20   | 4  |  |     |     |         | PAR. CONT. INT. SYNCHRONIZER PAR. CONT. INT. SYNCHRONIZER   | P04   |           |                        |
|             |        |      |           | 20   | 5  | 16   |     |     |         | SPOOLING MOTOR SUPPLY   | P05   |           |                        |
|             |        |      |           | 20   | 5  | _  |     |     |         | SPOOLING MOTOR SUPPLY   | P05   |           |                        |
|             |        |      |           | 20   | 6  | 2  |     |     |         | EXT. SENSORS<br>EXT. SENSORS  | P06   |           |                        |
|             |        |      |           |  | 7  | 1  |     |     |         | TAPE LIFT MOTOR. LEFT   | P07   |           |                        |
|             |        |      |           | 20   | 7  | 2  |     |     |         | TAPE LIFT MOTOR. LEFT   | P07   |           |                        |
| hILLI S1    | 1.820. | 090. | S<br>00 • | STU  | G<br>•••••  UDER   | N A  | L L | • 1 | W I R E | L I S T • 86/0°   | 5/14<br>5/23 -  | • 11:48 • | PAGF 48                |
| CHAI MANE   | COLGR  | HI   |           |  |  |  | 5   | T.A | TYPE    | DESCRIPTION OF ELEMENT  |   | REMARK    | ELEMENT NR.            |
|             |        |      |           | 20   |  | 2  |     |     |         | TAPE LIFT MOTOR, RIGHT  | P08   |           |                        |
| - CONT.OF   |        |      |           | 20   | 9  | I<br>2   |     |     |         | TACHO SENSOR (SPOOLING M. LEFT)   | P09   |           |                        |
| - CONT.OF   |        |      |           | 20   |  |  |     |     |         | TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT)  |   |           |                        |
| - CONT.OF   |        |      |           | 20<br>20   | 10   |  |     |     |         |   |   |           |                        |
| - CONT.OF   |        |      |           | 20<br>20   | 10   | 2  |     |     |         | TACHO SENSOR I SPOOLING M. RIGHT  | P10   |           |                        |
| - CONT.OF   |        |      |           | 20<br>20<br>20   | 10<br>10<br>11   | 1<br>2<br>1  |     |     |         | TACHD SENSOR (SPOOLING M. RIGHT) MOVE SENSOR  | P10<br>P11  |           |                        |
| CONT.OF     |        |      |           | 20<br>20<br>20<br>20<br>20<br>20   | 10<br>10<br>11<br>11   | 1<br>2<br>1<br>2<br>1  |     |     |         | TACHD SENSOR (SPOOLING M. RIGHT) MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR, LEFT  | P10<br>P11<br>P11<br>P12  |           |                        |
| - CONT.OF   |        |      |           | 20<br>20<br>20<br>20<br>20<br>20<br>20   | 10<br>10<br>11<br>11<br>12<br>12   | 1<br>2<br>1<br>2<br>1<br>2   |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) HOVE SENSOR HOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, LEFT  | P10<br>P11<br>P11<br>P12<br>P12   |           |                        |
| - CONT.OF   |        |      |           | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 10<br>10<br>11<br>11<br>12<br>12<br>13   | 1<br>2<br>1<br>2<br>1  |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) HOVE SENSOR HOVE SEASOR TAPE IENSION SENSOR. LEFT TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT  | P10<br>P11<br>P11<br>P12  |           |                        |
| - CONT.OF   |        |      |           | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 10<br>10<br>11<br>11<br>12<br>12<br>13<br>13                                     | 1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1  |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR   | P10<br>P11<br>P11<br>P12<br>P12<br>P13<br>P13                             |           |                        |
| - CONT.OF   |        |      |           | 2C<br>20<br>2C<br>20<br>2C<br>20<br>2C<br>20<br>20<br>20<br>20<br>20<br>20<br>20                         | 10<br>10<br>11<br>11<br>12<br>12<br>13   | 1<br>2<br>1<br>2<br>1<br>2<br>1<br>2   |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) HOVE SENSOR HOVE SEASOR TAPE IENSION SENSOR. LEFT TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT  | P10<br>P11<br>P11<br>P12<br>P12<br>P13<br>P13                             |           |                        |
| - CONT.OF   |        |      |           | 2C<br>20<br>2C<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20             | 10<br>10<br>11<br>11<br>12<br>12<br>13<br>13<br>14<br>14<br>15                   | 1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>2<br>2<br>2<br>1<br>2<br>2<br>2<br>1<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2  |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR FUSE FAILURE DETECTOR DISPLAY DRIVER DISPLAY DRIVER   | P10<br>P11<br>P11<br>P12<br>P12<br>P13<br>P13<br>P14<br>P14<br>P15        |           |                        |
| - CONT.OF   |        |      |           | 2C<br>20<br>2C<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20             | 10<br>10<br>11<br>11<br>12<br>12<br>13<br>13<br>14<br>14<br>15<br>15             | 1<br>2<br>1<br>2<br>1<br>2<br>1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1   |     |     |         | TACHO SENSOR ISPODLING M. RIGHT: MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR FUSE FAILURE DETECTOR DISPLAY DRIVER OISPLAY DRIVER PARALLEL REMOTE CONTROL                                 | P10<br>P11<br>P11<br>P12<br>P12<br>P13<br>P13<br>P14<br>P14<br>P15<br>P15 |           |                        |
| - CONT.OF   |        |      |           | 2C<br>20<br>2C<br>20<br>2C<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20 | 10<br>11<br>11<br>12<br>12<br>13<br>14<br>14<br>15<br>16<br>16                   | 1 2 1 2 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1  |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR FUSE FAILURE DETECTOR DISPLAY DRIVER PARALLEL REMOTE CONTROL PARALLEL REMOTE CONTROL TO HEAD BLOCK ASSEMBLY | P10<br>P11<br>P11<br>P12<br>P12<br>P13<br>P13<br>P14<br>P14<br>P15        |           |                        |
| - CONT.OF   |        |      |           | 2C<br>20<br>2C<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20             | 10<br>10<br>11<br>11<br>12<br>12<br>13<br>13<br>14<br>14<br>15<br>15<br>16<br>16 | 1<br>2<br>1<br>2<br>1<br>2<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>1<br>2<br>2<br>2<br>2<br>2<br>1<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>1<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2 |     |     |         | TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR FUSE FAILURE DETECTOR OISPLAY DRIVER PARALLEL REMOTE CONTROL PARALLEL REMOTE CONTROL  | P10<br>P11<br>P12<br>P12<br>P13<br>P13<br>P14<br>P14<br>P15<br>P16        |           |                        |

| STATE   March   Marc    | **********  |   | 90.00 . 5   |  |   |            |                                      | ***********************   | 2/23 -  |           |  |
|---|-------------|---|---|--|---|------------|--------------------------------------|---|---|-----------|--|
| Comparison  | SIGNAL NAME | COLOR                                   | MI ASY GR   | P ELM  |   | S LV       | TYPE                                 | DESCRIPTION OF ELEMENT  |   | REMARK    | ELEMENT NR.  |
| **************************************  |             | 000000000000000000000000000000000000000 | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | 33<br>33<br>34<br>34<br>34<br>34<br>34<br>34<br>34<br>34 | 19<br>213<br>225<br>246<br>80<br>10<br>112<br>1146<br>118<br>22<br>2246<br>80<br>10<br>112<br>1146<br>1178<br>1178<br>1178<br>1178<br>1178<br>1178<br>1178<br>117 |            | L<br>L<br>L<br>L<br>L<br>F<br>F<br>F | TO AUDIC BASIS BOARD, ELM31 TO AUDIC BASIS BOARD, ELM31 TO AUDIC BASIS BOARD, ELM31 INT. SYNCHRONIZER | P23<br>P23<br>P23<br>P24<br>P24<br>P24<br>P24<br>P24<br>P24<br>P24<br>P24<br>P24<br>P24 |           | 1 - 870 - 774 - 00 1 - 820 - 771 - 00 1 - 872 - 777 - 00 1 - 872 - 772 - 00 1 - 872 - 762 - 00 1 - 872 - 764 - 00 1 - 872 - 764 - 00 1 - 872 - 7763 - 00 1 - 872 - 7763 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 1 - 872 - 7753 - 00 |
| * 1.22C.090.00 * STUDER & F22C * TAPE DECK & A AUDIO ** 63/02/23 - 00 **  **O.0**  **SIGNAL MAPE**** COLDP MI ASY GRP ELW PAT \$ LV TYPE***  **O.0**  **O.0** |             |   |   |  |   |            |                                      |   |   |           |  |
| **O.O*** CONT.OF C  |             |   |   |  |   |            |                                      |   |   |           |  |
| ** 0.0 0 20 70 13 F FROM GRP71, ELMO1 J13 C 20 70 14 F FROM GRP71, ELMO1 J13 C 20 70 21 F F FROM GRP71, ELMO1 J13 C 20 70 21 F F FROM GRP71, ELMO1 J13 C 20 70 21 F F FROM GRP71, ELMO1 J13 C 21 1 6 M F TO GRP20, ELMO PD1 C 21 1 8 M TO GRP20, ELMO PD1 C 21 1 1 8 M TO GRP20, ELMO PD1 C 21 1 1 6 M TO GRP20, ELMO PD1 C 21 1 1 6 M TO GRP20, ELMO PD1 C 21 1 1 6 M TO GRP20, ELMO PD1 C 21 1 1 14 M TO GRP20, ELMO PD1 C 21 1 21 M TO GRP20, ELMO PD1 C 21 2 1 2 1 M TO GRP20, ELMO PD1 C 21 2 2 5 F FROM GRP19, ELMO2 J01 C 21 2 6 F FROM GRP19, ELMO2 J01 C 21 2 1 0 F FROM GRP19, ELMO2 J01 C 21 2 1 0 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 2 1 1 F FROM GRP19, ELMO2 J01 C 21 3 5 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 7 F COMMECTER SYMCHMONIZER P02 C 21 3 7 F COMMECTER SYMCHMONIZER P02 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 6 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3 7 F FROM GRP19, ELMO2 J01 C 21 3  | WILLI ST    | 1.82C.0                                 | * 5   | I G  | N A   | L<br>C • T | W I R E<br>APE DECK & AUDIO          | L I S T * 86/0  | 5/14<br>• • • • • • •<br>2/23 -   | * I1:48 * | PAGE 50 *  |
|   | SIGNAL NAME | 1.82C.O                                 | * S   | TUDER  | N A E2  | L<br>C + T | APE DECK & AUGIC                     | L I S 1   | 5/14<br>• • • • • • • • • • • • • • • • • • •   | 11:48 •   | PAGE 50 *  |

| IGNAL NAME          |  |        |  |  | PNT S LV  |  | DESCRIPTION OF ELEMENT   |  | REMARK    | ELEMENT NR.   |
|---------------------|--|--------|--|--|---|--|--|--|-----------|---|
| - CONT.CF           |  |        | 21   |  | 11  |  | FROM TAPE DECK BASIS BOARD   | J06  | -         |   |
| 0.0                 |  |        | 21   | 31   | 13  |  | FROM TAPE DECK BASIS BOARD<br>FROM TAPE DECK BASIS BOARD<br>FROM TAPE DECK BASIS BOARD   | 106<br>106   |           |   |
|                     |  |        | 21   | 31   | 17<br>19<br>21  |  | FROM TAPE DECK BASIS BOARD<br>FROM TAPE DECK BASIS BOARD   | 706<br>706   |           |   |
|                     |  |        | 21   | 31   | 23  |  | FROM TAPE DECK BASIS BOARD<br>FROM TAPE DECK BASIS BOARD   | 106  |           |   |
|                     | \$   |        | 21   |  | 21  | U  | TIME CODE WRITE/READ UNIT  | J07<br>J08   |           | 1.820.721.0   |
|                     |  |        |  | 41   | 5<br>21   |  | TIME CODE DELAY UNIT   | JO8  |           | 1.820.722.  |
|                     |  |        |  | 42   | 3   |  | HF-DRIVER. CH 1<br>HF-DRIVER. CH 1   | 704<br>104   |           | 1.820.713.0   |
|                     |  |        |  |  | 11<br>16  |  | HF-DRIVER. CH 1<br>HF-DRIVER. CH 1   | 708<br>708   |           | 1-820-713-0   |
|                     |  |        |  | 42<br>43   | 5   |  | HF-DRIVER. CH 1<br>RECORD AMPLIFIER. CH 1  | 710<br>104   |           | 1.820.713.  |
|                     | S  |        | 21   | 43   | 11  | U  | RECORD AMPLIFIER. CH 1<br>RECORD AMPLIFIER. CH 1   | 710<br>710   |           | 1.820.712.  |
|                     |  |        | 21   | 43   | 16<br>21  |  | RECORD AMPLIFIER. CH 1<br>RECORD AMPLIFIER. CH 1   | J10  |           | 1.820.712.  |
|                     | S  |        | 21   | 44   | 8   | U  | REPRODUCE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 1  | J11  |           | 1.820.710.6   |
|                     |  |        | 21   |  | 11  |  | REPRODUCE AMPLIFIER. CH 1<br>REPRODUCE AMPLIFIER. CH 1   | J11  |           | 1.870.710.0   |
|                     |  |        | 21   | 44   | 14  |  | REPRODUCE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 1  | 711  |           | 1.820.710.8   |
|                     | S  |        | 21   | 45   | 21<br>2<br>5  | U  | LINE AMPLIFIER. CH 1<br>LINE AMPLIFIER. CH 1   | J11<br>J12<br>J17  |           | 1.820.710.8   |
|                     | s  |        | 21   | 45   | 9<br>13   | u  | LINE AMPLIFIER. CH 1<br>LINE AMPLIFIER. CH 1   | J12  |           | 1.820.714.6<br>1.820.714.6<br>1.820.714.6   |
|                     |  |        |  | 45   | 21  |  | LINE AMPLIFIER, CH 1 MONG-STEREO-SWITCH  | J12  |           | 1.820.714.6   |
|                     |  |        | 21   | 46   | 4   |  | MONG-STEREO-SWITCH<br>MONG-STEREO-SWITCH   | J13  |           | 1.820.720.0   |
|                     |  |        | 21   | 46   | 8   |  | MONO-STEREO-SWITCH<br>HONO-STEREO-SWITCH   | J13  |           | 1.820.720.0<br>1.82C.720.0  |
|                     |  |        | 21   | 46   | 12  |  | MOND-STEREO-SWITCH<br>MOND-STEREO-SWITCH   | J13  |           | 1.820.770.  |
|                     |  |        | 21   |  | 21  |  | MOND-STERED-SWITCH<br>HF-DRIVER. CH 2  | J13  |           | 1.820.720.  |
|                     |  |        |  | 47   | 11  |  | HF-DRIVER. CH 2<br>HF-ORIVER. CH 2   | J14  |           | 1.820.713.0   |
|                     |  |        |  |  | 16<br>21  |  | HF-DRIVER. CH 2<br>HF-DRIVER. CH 2   | J14  |           | 1.820.713.0<br>1.820.713.0  |
|                     | s  |        | 21   |  | 5<br>11   | U  | RECORD AMPLIFIER. CH 2<br>RECORD AMPLIFIER. CH 2   | J15  |           | 1.820.712.  |
|                     |  |        |  |  | 14  |  | RECORD AMPLIFIER. CH 2<br>RECORD AMPLIFIER. CH 2   | J15  |           | 1.820.712.0   |
|                     |  |        |  |  |   |  |  | 31,  |           |   |
| WILLI ST            | 1.82C.   | 090.00 | 21<br>21<br>21<br>5 1  | 48<br>49<br>49   | 21<br>5<br>8<br>8<br>A A L  | A I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S I 86/0   | J15<br>J16<br>J16  | * 11:48 * | 1.820.712.6<br>1.820.710.6<br>1.820.710.6<br>-/   |
| WILLI ST            | TUDER AG   | 090.00 | 21<br>21<br>21<br>5 I<br>• STU   | 48<br>49<br>49<br>5<br>5<br>JDER   | 21<br>5<br>8<br>8<br>A A L  | M I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 L I S I # 86/0  | J15<br>J16<br>J16  | * 11:48 * | 1.820.712.6<br>1.820.710.6<br>1.820.710.6<br>-/   |
| GNAL NAME           | TUDER AG   | 090.00 | 21<br>21<br>21<br>21<br>5 I  | 48<br>49<br>49<br>49<br>UDER   | 21<br>5<br>8<br>N A L<br>***********************************                                    | M I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER, CH 2 REPRODUCE AMPLIFIER, CH 2  L I S T  | J15<br>J16<br>J16<br>5/14  | 11:48     | 1.820.710.6<br>1.820.710.6<br>1.820.710.6<br>-/   |
| GNAL NAME - CONT.OF | TUDER AG   | 090.00 | 21<br>21<br>21<br>3 I<br>• STU   | 48<br>49<br>49<br>5<br>JUER<br>ELM<br>49<br>49   | 21<br>5<br>8<br>8<br>N A L<br>***********************************                               | M I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER, CH 2 REPRODUCE AMPLIFIER, CH 2  L I S T  | J15<br>J16<br>J16<br>J16   | 11:48     | 1.820.712.6 1.820.710.6 1.820.710.6  PAGF 52  ELEMENT NR.  1.870.710.6 1.820.710.1                                      |
| GNAL NAME           | TUDER AG   | 090.00 | 21<br>21<br>21<br>21<br>5 I<br>5 STU<br>6Y GRP<br>21<br>21<br>21<br>21<br>21   | 48<br>49<br>49<br>49<br>49<br>49<br>49<br>49   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | h I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>J16<br>5/14<br>000000000000000000000000000000000000  | 11:48     | 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 PAGF 52  ELEMENT MR.  1.870.710.6 1.820.710.6 1.820.710.6               |
| GNAL NAME           | TUDER AG   | 090.00 | 21<br>21<br>21<br>5 I<br>• STU<br>• STU | 48<br>49<br>49<br>UDER<br>ELM<br>49<br>49<br>49<br>50  | 21<br>5<br>8<br>N A L<br>N A L<br>N A EZC • 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | M I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  B 66/0  B 70   | J15<br>J16<br>J16<br>5/14<br>************************************  | 11:48     | 1.820.712.6 1.870.710.6 1.820.710.6 1.820.710.6 PAGF 52  ***********************************                            |
| GNAL NAME           | TUDER AG   | 090.00 | 21<br>21<br>21<br>5 I I I I I I I I I I I I I I I I I I I  | 48<br>49<br>49<br>UDER<br>ELN<br>49<br>49<br>49<br>50<br>50  | 21<br>5 8<br>8 8<br>N A L<br>Verence A E2C • 1<br>10 11<br>14<br>14<br>18<br>21<br>22<br>5      | h I R E  | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>J16<br>5/14<br>2/23  | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| MILLI ST            | COLOR  | 090.00 | 21<br>21<br>21<br>5 I<br>5 STU<br>6 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 48<br>49<br>49<br>6<br>6<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>70   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | H I R E TAPE DECK & AUOI                                   | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  BESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2   | J15<br>J16<br>J16<br>5/14<br>000000<br>7/23<br>J16<br>J16<br>J16<br>J16<br>J17<br>J17<br>J17   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| MILLI ST            | 1.82C.   | 090.00 | 21<br>21<br>21<br>3 I I I I I I I I I I I I I I I I I I I  | 48<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>65<br>50<br>50<br>50<br>70<br>70   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B B B B                                     | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T ** 86/0'  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIE | J15<br>J16<br>J16<br>2/23  | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| GNAL NAME           | TUDER AGE 1-82C- COLOR S S S S S S S S S S S S S S S S S S S | 090.00 | 21<br>21<br>21<br>5 II<br>6 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 48<br>49<br>49<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G  | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D                               | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  O  | J15<br>J16<br>J16<br>J16<br>J16<br>J16<br>J16<br>J16<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17   | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| GNAL NAME           | S S S S S S S S S S S S S S S S S S S                        | 090.00 | 21<br>21<br>21<br>21<br>3  | 48<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D  D  D                         | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16  | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| GNAL NAME           | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>3 S II<br>4 STU<br>5 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21   | 48<br>49<br>49<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G  | 21 21 2 3 12 22 29 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  | TYPE  U  U  U  U  B B B B B B D D D D D                    | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16  | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| MILLI ST            | COLOR  S S S S S S S S S S S S S S S S S S                   | 090.00 | 21<br>21<br>21<br>3 S II<br>4 STU<br>5 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21   | 49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>4  | 21 21 21 22 3 3 12 22 22 23 3 3 3 3 3 3   | TYPE  U  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D    | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16  | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| MILLI ST            | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>3 S II<br>4 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 49<br>49<br>6<br>6<br>6<br>6<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D                | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T * 86/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY CONNECTOR LINE FILTER. INPUT CONNECTOR LINE FILTER. UTPUT CONNECTOR LINE FILTER. UTPUT CONNECTOR LINE FILTER. UTPUT CONNECTOR LINE FILTER. OUTPUT CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER   | J155 J166 J166 J166 J166 J166 J166 J167 J177 J17   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 P A G F 52 ************************************                         |
| MILLI ST            | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>3 S II<br>4 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 49<br>49<br>49<br>49<br>50<br>50<br>50<br>50<br>50<br>50<br>57<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71<br>71   | 21  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T * 66/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. | J155 J166 J166 J166 J166 J166 J161 J167 J177 J17   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 P A G F 52 ************************************                         |
| MILLI ST            | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 49<br>49<br>49<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>70<br>77<br>70<br>3<br>4<br>3<br>4<br>4<br>1<br>2<br>2<br>2<br>3   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>J16<br>J16<br>J16<br>J16<br>J16<br>J16<br>J17<br>J17<br>J17<br>J17<br>J17<br>J18<br>J18<br>J18<br>J18<br>J18<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19 | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 P A G F 52 ************************************                         |
| MILLI ST            | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>3 S II<br>4 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 49<br>49<br>49<br>49<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>70<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>77<br>70<br>70   | 21  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J155 J166 J166 J166 J166 J166 J167 J177 J177   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 P A G F 52 ************************************                         |
| MILLI ST            | COLOR  S S S S S S S S S S S S S S S S S S                   | 090.00 | 21<br>21<br>21<br>21<br>3 S II<br>4 STU<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>22<br>23<br>24<br>25<br>25<br>25<br>25<br>27<br>27<br>27<br>27  | 49<br>49<br>49<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T * 86/0  C * 83/0  C * 82/0  C *  | J155 J166 J166 J166 J166 J166 J161 J167 J177 J17   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 P A G F 52 ************************************                         |
| MILLI ST            | COLOR S S S S S S S S S S S S S S S S S S S                  | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 49<br>49<br>49<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70   | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J155 J166 J166 J166 J166 J161 J167 J177 J177   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| MILLI ST            | I-82C. COLOR S S S S S S S S S S S S S S S S S S S           | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>4  | 21  | TYPE  U  U  U  U  U  B  B  B  B  B  B  B  B                | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T  | J155 J166 J166 J166 J166 J166 J166 J167 J177 J17   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| MILLI ST            | S S S S S S S S S S S S S S S S S S S                        | 090.00 | 21<br>21<br>21<br>21<br>3  | 489 449 449 449 449 449 449 449 449 449  | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D          | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. C | J155 J166 J166 J166 J166 J166 J167 J177 J177   | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| GNAL NAME           | S S S S S S S S S S S S S S S S S S S                        | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 489 449 449 449 449 449 449 449 449 449  | 21  | TYPE  U  U  U  B  B  B  D  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  O   | J155 J166 J166 J166 J166 J166 J167 J177 J177   | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| MILLI ST            | I-82C. COLOR S S S S S S S S S S S S S S S S S S S           | 090.00 | 21<br>21<br>21<br>21<br>3 S II<br>4 S S II<br>6 S S II<br>7 G R P<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21  | 49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>4  | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  O   | J155 J166 J166 J166 J161 J161 J161 J161  | 11:48     | 1.820.712.1 1.870.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.710.1 1.820.714.1 1.820.714.1 1.820.714.1 |
| MILLI ST            | 1.82C  | 090.00 | 21<br>21<br>21<br>21<br>3 STU-<br>4 STU-<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21   | 49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>49<br>4  | 21 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8  | TYPE  U  U  U  B  B  B  B  B  B  B  B  B  B                | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY CONNECTOR LINE FILTER. DUTPUT CONNECTOR LINE FILTER. DUTPUT CONNECTOR LINE FILTER. OUTPUT CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER TO CONNECTOR SYNC | J155 J166 J166 J161 J161 J161 J161 J161  | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1                         |
| MILLI ST            | 1.82C  | 090.00 | 21<br>21<br>21<br>21<br>3 S I  | 48949<br>49950<br>500550<br>500550<br>500550<br>670770<br>70343434<br>1122225<br>6612222   | 21  | TYPE  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D       | RECORD APPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH | J155 J166 J166 J166 J166 J161 J161 J161  | 11:48     | 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1 1.820.714.1             |
| MILLI ST            | 1.82C  | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 48949<br>GG. 499449<br>449449<br>5505565<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>77770<br>777700<br>777700<br>777700<br>777700<br>777700<br>777700<br>777700<br>777700 | 21  | TYPE  U  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D    | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  BESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY CONNECTOR LINE FILTER. OUTPUT CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER TO CONNECTOR S | J155 J166 J166 J166 J166 J166 J166 J167 J177 J17   | 11:48     | 1.820.712.6<br>1.820.710.6<br>1.820.710.6<br>-/   |
| WILLI ST            | 1.82C  | 090.00 | 21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>2  | 48 49 49 50 50 50 50 50 50 50 50 50 50 50 50 50  | 21  | TYPE  U  U  U  U  B  B  B  B  D  D  D  D  D  D  D  D  D    | RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFI | J155 J166 J166 J166 J161 J161 J161 J161  | 11:48     | 1.820.714.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 1.820.710.6 |

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 DESCRIPTION OF ELEMENT

OUTPUT
FROM GRP20. ELMO1
FROM GRP20. ELMO1
FROM GRP20. ELMO1
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TACH SIGNAL NAME COLDR MI ASY GRP ELM PNT S LV <-- CONT.OF 10 13 14 21 7 1 2 16 1 2 1.870.771.00 1.870.771.00 1.820.771.00 1.820.771.00 

SIGNAL NAME COLOR HI ASY GRP FLM PNT S LV TYPE DESCRIPTION OF FLEMENT REMARK ELEMENT NR.

| SIGNAL NAME | COLOR | MI | ASY | GRP      | ELM | PNT | S | FA | TYPE | DESCRIPTION OF ELEMENT                        |     | REMARK | ELEMENT NR. |
|-------------|-------|----|-----|----------|-----|-----|---|----|------|---|-----|--------|-------------|
| < CONT.OF   | 0     |    |     | 60       | 1   | 12  | - |    | A    | HEAD BLCCK CONNECTOR                          | P01 |        |             |
| . 0.0       | ō     |    |     | 60       | 1   | 22  |   |    | A    | HEAD BLCCK CONNECTOR                          | POI |        |             |
| 171.7.7.1   | 0     |    |     | 60       | 1   | 29  |   |    | A    | HEAD BLICK CONNECTOR                          | POI |        |             |
|             |       |    |     | 60       | 2   | 1   |   |    |      | FROM GRP2O. ELM17                             | P02 |        |             |
|             |       |    |     | 60       | 2   | 13  |   |    |      | FROM GRP20. ELM17                             | P02 |        |             |
|             |       |    |     | 60       | 2   | 14  |   |    |      | FROM GRP20. ELM17                             | P02 |        |             |
|             |       |    |     | 60       | 2   | 23  |   |    |      | FROM GRP20. ELM17                             | P07 |        |             |
|             |       |    |     | 60       | 2   | 24  |   |    |      | FROM GRP2O. ELM17                             | P02 |        |             |
|             | S     |    |     | 60       | 3   | 4   |   |    | L    | REPRODUCE PREAMPLIFIER                        |     |        |             |
|             | S     |    |     | 6 C      | 3   | 5   |   |    | L    | REPRODUCE PREAMPLIFIER                        |     |        |             |
|             |       |    |     | 7 C      | 1   | 1   |   |    |      | FROM GRP20. ELMIB                             | P01 |        |             |
|             |       |    |     | 70       | 1   | 2   |   |    |      | FROM GRP2O. ELMI8                             | POI |        |             |
|             |       |    |     | 7 C      | 1   | 20  |   |    |      | FROM GRP2O. ELMI8                             | POI |        |             |
|             |       |    |     | 70       | 1   | 22  |   |    |      | FROM GRP20. ELMI8                             | POI |        |             |
|             |       |    |     | 70       | 1   | 25  |   |    |      | FROM GRP20. ELMI8                             | P01 |        |             |
|             |       |    |     | 70       | 1   | 26  |   |    |      | FROM GRP20. ELM18                             | P01 |        |             |
|             |       |    |     | 70       | 2   | 1   |   |    |      | RESERVE                                       | P02 |        |             |
|             |       |    |     | 70       | 2   | 2   |   |    |      | RESERVE                                       | PO2 |        |             |
|             |       |    |     | 70       | 2   | 20  |   |    |      | RESERVE                                       | P02 |        |             |
|             |       |    |     | 7 C      | 2   | 22  |   |    |      | RESERVE<br>RESERVE                            | P02 |        |             |
|             |       |    |     | 70       | 2   | 25  |   |    |      |   | PDZ |        |             |
|             |       |    |     | 70       | 2   | 26  |   |    |      | RESERVE<br>RESERVE                            | P03 |        |             |
|             |       |    |     | 70       | 3   | 1   |   |    |      | RESERVE                                       | PO3 |        |             |
|             |       |    |     | 70       | 3   | . 2 |   |    |      | RESERVE                                       | P03 |        |             |
|             |       |    |     | 70<br>70 | 3   | 14  |   |    |      | COMMANDS CH 03                                | P04 |        |             |
|             |       |    |     | 70       | 4   | 2   |   |    |      | COMMANDS CH 03                                | P04 |        |             |
|             |       |    |     | 70       | 5   | 1   |   |    |      | COMMANDS CH OI                                | P05 |        |             |
|             |       |    |     | 70       | 5   | 2   |   |    |      | COMMANDS CH OI                                | P05 |        |             |
|             |       |    |     | 70       | 6   | î   |   |    |      | COMMANDS CH 02                                | P06 |        |             |
|             |       |    |     | 70       | 6   | ž   |   |    |      | COMMANDS CH D2                                | P06 |        |             |
|             |       |    |     | 70       | 7   | ĩ   |   |    |      | COMMANDS MONITOR AMPLIFIER                    | P07 |        |             |
|             |       |    |     | 7 C      | 7   | 2   |   |    |      | COMMANDS MONITOR AMPLIFIER                    | P07 |        |             |
|             |       |    |     | 70       | 7   | 16  |   |    |      | COMMANDS MONITOR AMPLIFIER                    | P07 |        |             |
|             |       |    |     | 70       | 8   | 1   |   |    |      | VU-METER CH O1. AUDIO                         | J01 |        |             |
|             |       |    |     | 70       | 8   | 4   |   |    |      | VU-METER CH OI. AUDIO                         | J01 |        |             |
|             |       |    |     | 70       | 8   | 7   |   |    |      | VU-METER CH 01. AUDIO                         | 101 |        |             |
|             |       |    |     | 70       | 9   | 1   |   |    |      | AUDIO CH OI (FROM GRP21. ELMII)               | 705 |        |             |
|             |       |    |     | 70       | 9   | 4   |   |    |      | AUDIO CH OL (FROM GRP21. ELMIL)               | J02 |        |             |
|             |       |    |     | 70       | 9   | 7   |   |    |      | AUDIO CH OI (FROM GRP21. ELMII)               | J02 |        |             |
|             |       |    |     | 70       | 10  | 1   |   |    |      | VU-METER CH 02. AUDIO                         | J03 |        |             |
|             |       |    |     | 70       | 10  | 4   |   |    |      | VU-METER CH 02. AUDIO                         | J03 |        |             |
|             |       |    |     | 70       | 10  | 7   |   |    |      | VU-METER CH 02. AUDIO                         | J03 |        |             |
|             |       |    |     | 70       | 11  | 1   |   |    |      | AUDIO CH 02 (FROM GRP21. ELM12)               | J04 |        |             |
|             |       |    |     | 70       | 11  | 4   |   |    |      | AUDIO CH 02 (FROM GRP21. ELM12)               | J04 |        |             |
|             |       |    |     | 70       | 11  | 7   |   |    |      | AUDIO CH 02 (FROM GRP21, ELM12)               | J04 |        |             |
|             |       |    |     | 70       | 12  | 2   |   |    |      | FROM GRP21. ELM13                             | J05 |        |             |
|             |       |    |     | 70       | 12  | . 6 |   |    |      | FROM GRP21, ELM13                             | J05 |        |             |
|             |       |    |     | 70       | 12  | 12  |   |    |      | FROM GRP21. ELM13<br>Monitor amplifier. Audio | 106 |        |             |
|             |       |    |     | 70       | 13  | 2   |   |    |      | MONITOR AMPLIFIER. AUDIO                      | J06 |        |             |
|             |       |    |     | 70       | 13  | 4   |   |    |      | MONITOR AMPLIFIER. AUDIO                      | 106 |        |             |
|             |       |    |     | 7C       | 13  | 8   |   |    |      | MONITOR AMPLIFIER. AUDIO                      | J06 |        |             |
|             |       |    |     | 70       | 13  | 12  |   |    |      | MONITOR AMPLIFIER. AUDIO                      | 106 |        |             |
|             |       |    |     | , ,      | 13  | 14  |   |    |      |   |     |        | -1-         |

| SIGNAL NAME | COLCR  | MI | ASY GRP    | ELM | PNT | S | LV | TYPE | DESCRIPTION OF ELEMENT   |            | RFMARK | ELEMENT NR. |
|-------------|--------|----|------------|-----|-----|---|----|------|--|------------|--------|-------------|
| < CONT.GF   | S<br>S |    | 71<br>71   | 1   | 2   |   |    | N    | AUDIO INPUT<br>AUDIO INPUT                                       | J01        |        |             |
| 0.0         | S      |    | 71         | î   | ė   |   |    | N    | AUDIO INPUT  | 101        |        |             |
|             | Š      |    | 71         | î   | 8   |   |    | N    | AUDIO INPUT  | JOI        |        |             |
|             | S      |    | 71         | 1   |     |   |    | N    | AUDIO INPUT  | JOI        |        |             |
|             |        |    | 71         |     | 1   |   |    |      | FROM GRP70. ELMO7  | POI        |        |             |
|             |        |    | 71         | 2   |     |   |    |      | FROM GRP70. ELMO7  | POI        |        |             |
|             | S-0    |    | 71<br>71   | 2   |     |   |    | N    | FROM GRP70. ELMO7<br>TO PHONES CONNECTOR                         | P01<br>J02 |        |             |
|             | 5-0    |    | 71         | 6   | 1   |   |    | î    | PHONES CONNECTOR   | 302        |        |             |
| 5.0         |        |    | 26         | 1   | 2   | - |    |      | FROM GRP27. ELMOI  | POI        |        |             |
|             |        |    | 27         | 1   | 2   |   |    |      | TO GRP26. ELMO1  | POI        |        |             |
|             |        |    | 48         | 2   | 3   |   |    |      | CONNECTOR EDIT ASSEMBLY  |            |        |             |
|             |        |    | 49         | 1   | 3   |   |    |      | FROM GRP48. ELMO2  |            |        |             |
|             |        |    | 4 9<br>5 0 | 2   | 2   |   |    |      | WIRE FIELD CONNECTOR LCD DISPLAY UNIT                            | P04        |        |             |
|             |        |    | 52         | 1   | 2   |   |    |      | FROM GRP50. ELMO4  |            |        |             |
| • 5.6       | 3      |    | 19         | 1   | 1   | _ |    | F    | FROM GRP32 . EL MO2  | 101        |        |             |
|             | 3      |    | 19         | 1   | 2   |   |    | F    | FROM GRP32. ELMO2  | 101        |        |             |
|             | 3      |    | 19         | 2   | 1   |   |    | H    | TO GRP21. ELMO2  | POI        |        |             |
|             | 3      |    | 19         | 2   | 2   |   |    | H    | TO GRP21. ELMO2  | POI        |        |             |
|             |        |    | 2C<br>2C   | 1   | 3   |   |    |      | SPOOLING MOTOR DRIVE AMP. LEFT<br>SPOOLING MOTOR DRIVE AMP. LEFT | POI        |        |             |
|             |        |    | 20         | 2   | 3   |   |    |      | SPOOLING MOTOR DRIVE AMP. RIGHT                                  |            |        |             |
|             |        |    | 20         | 2   | 4   |   |    |      | SPOOLING MOTOR DRIVE AMP. RIGHT                                  |            |        |             |
|             |        |    | 20         | 3   | 3   |   |    |      | CAPSTAN MOTOR DRIVE AMPLIFIER                                    | POB        |        |             |
|             |        |    | 20         | 3   | 4   |   |    |      | CAPSTAN MOTOR DRIVE AMPLIFIER                                    | P03        |        |             |
|             |        |    | 2 C        | 4   | 3   |   |    |      | PAR. CONT. INT. SYNCHRONIZER                                     | P04        |        |             |
|             |        |    | 20         | 5   | 3   |   |    |      | PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY               | P04        |        |             |
|             |        |    | 20<br>20   | 5   | 4   |   |    |      | SPOOLING MOTOR SUPPLY  | P05        |        |             |
|             |        |    | 20         | 6   | 3   |   |    |      | EXT. SENSORS   | PD6        |        |             |
|             |        |    | 20         | 6   | 4   |   |    |      | EXT. SENSORS   | P06        |        |             |
|             |        |    | 20         | 7   | 3   |   |    |      | TAPE LIFT MOTOR. LEFT  | PD7        |        |             |
|             |        |    | 2 C        | 7   | 4   |   |    |      | TAPE LIFT MOTOR, LEFT  | P07        |        |             |
|             |        |    | 20         | 8   | 3   |   |    |      |  | P08        |        |             |
|             |        |    | 20<br>20   | 9   | 3   |   |    |      | TAPE LIFT MOTOR. RIGHT<br>TACHO SENSOR (SPOOLING M. LEFT)        | 809<br>P09 |        |             |
|             |        |    | 20         | ģ   | 4   |   |    |      | TACHO SENSOR (SPOOLING M. LEFT)                                  |            |        |             |
|             |        |    |            | 10  | 3   |   |    |      | TACHO SENSOR (SPOOLING M. RIGHT)                                 |            |        |             |
|             |        |    |            | 10  | 4   |   |    |      | TACHO SENSOR (SPOOLING M. RIGHT)                                 |            |        |             |
|             |        |    | 20         | 11  | 3   |   |    |      | MOVE SENSOR  | PII        |        |             |
|             |        |    |            | 11  | 4   |   |    |      | HOAE SENSON  | Pli        |        |             |
|             |        |    |            | 12  | 3   |   |    |      | TAPE TENSION SENSOR. LEFT  | P12        |        |             |
|             |        |    |            | 12  | 3   |   |    |      | TAPE TENSION SENSOR, LEFT<br>TAPE TENSION SENSOR, RIGHT          | P12        |        |             |
|             |        |    |            | 13  | 4   |   |    |      | TAPE TENSION SENSOR. RIGHT                                       | P13        |        |             |
|             |        |    | 20         | 14  | ģ   |   |    |      | FUSE FAILURE DETECTOR  | P14        |        |             |
|             |        |    | 20         | 14  | 10  |   |    |      | FUSE FAILURE DETECTOR  | P14        |        |             |
|             |        |    | 20         | 15  | 3   |   |    |      | DISPLAY DRIVER   | P15        |        |             |
|             |        |    |            | 15  | 4   |   |    |      | DISPLAY DRIVER   | P15        |        |             |
|             |        |    | 2 C        | 16  | 3   |   |    |      | PARALLEL REMOTE CONTROL  | P16        |        |             |

• WILL STUDER AG • S 1 G N A L W 1 R E L 1 S T • 86/05/14 • 11:48 • P A G E 56

| SIGNAL NAME | COLOR | H1 | ASY GRP | EL | PNT       | s | LV | TYP | E | DESCRIPTION OF ELEMENT                           |     | REMARK | ELEMENT NR.  |
|-------------|-------|----|---------|----|-----------|---|----|-----|---|--|-----|--------|--------------|
| < CONT.OF   |       |    | 20      | 16 | 4         |   |    |     |   | PARALLEL REMOTE CONTROL                          | P16 |        |              |
| + 5.6       |       |    | 20      | 17 | 3         |   |    |     |   | TO HEAD BLOCK ASSEMBLY                           | P17 |        |              |
|             |       |    | 20      | 17 | 4         |   |    |     |   | TO HEAD BLOCK ASSEMBLY                           | P17 |        |              |
|             |       |    | 20      | 18 | 3         |   |    |     |   | VU-METER PANEL . EXTERNAL                        | P18 |        |              |
|             |       |    | 20      | 18 | 4         |   |    |     |   | VU-METER PANEL . EXTERNAL                        | P18 |        |              |
|             |       |    | 20      | 19 | 3         |   |    |     |   | SOURCE SELECTOR                                  | P19 |        |              |
|             |       |    | 20      | 19 | 4         |   |    |     |   | SOURCE SELECTOR                                  | P19 |        |              |
|             |       |    | 20      | 40 | 20        |   |    |     |   | SPOOLING MOTOR DRIVER                            | J01 |        | 1.820.759.00 |
|             |       |    | 20      | 41 | 20<br>16A |   |    |     |   | CAPSTAN CONTROL UNIT                             | J02 |        | 1-820-764-00 |
|             |       |    | 20      | 42 | 168       |   |    |     |   | CAPSTAN INTERFACE                                | J03 |        | 1.820.727.00 |
|             |       |    | 20      | 43 | 164       |   |    |     |   | TAPE DECK PERIPHERY CONTR.                       | J03 |        | 1.820.727.00 |
|             |       |    | 20      | 43 | 168       |   |    |     |   | TAPE DECK PERIPHERY CONTR.                       | J04 |        | 1.820.762.00 |
|             |       |    | 20      | 44 | 20        |   |    |     |   | TAPE DECK COUNTER / TIMER                        | J05 |        | 1.820.761.00 |
|             |       |    | 20      | 45 | 20        |   |    |     |   | SPOOLING MOTOR CONTROLLER                        | J06 |        | 1.820.760.00 |
|             |       |    | 20      | 46 | 20        |   |    |     |   | MP-UNIT TO CONTROL                               | J07 |        | 1.820.781.00 |
|             |       |    | 20      | 47 | 20        |   |    |     |   | TAPE DECK SERIAL INTERFACE                       | 108 |        | 1.820.763.00 |
|             |       |    | 20      | 48 | 16A       |   |    |     |   | MASTER SERIAL INTERFACE                          | 109 |        | 1.820.753.00 |
|             |       |    | 20      | 48 | 168       |   |    |     |   | MASTER SERIAL INTERFACE                          | J09 |        | 1.820.753.00 |
|             |       |    | 20      | 49 | 20        |   |    |     |   | MP-UNIT MASTER                                   | J10 |        | 1.820.784.00 |
|             |       |    | 20      | 50 | 20        |   |    |     |   | SMPTE/EBU INTERFACE                              | J11 |        | 1.820.751.00 |
|             |       |    | 20      | 51 | 18A       |   |    |     |   | MASTER PERIPHERY CONTROLLER                      | J12 |        | 1.820.728.00 |
|             |       |    | 20      | 51 | 188       |   |    |     |   | MASTER PERIPHERY CONTROLLER                      | J12 |        | 1.820.728.00 |
|             | 3     |    | 20      | 62 | 1         |   |    | L   |   | WIRE FIELD                                       |     |        |              |
|             | 3     |    | 20      | 62 | 2         |   |    | L   |   | WIRE FIELD                                       |     |        |              |
|             | 3     |    | 20      | 70 | 1         |   |    | F   |   | FROM GRP21. ELMO1                                | J13 |        |              |
|             | 3     |    | 20      | 70 | 2         |   |    | F   |   | FROM GRP21. ELMO1                                | J13 |        |              |
|             |       |    | 21      | 1  | 1         |   |    | H   |   | 10 GRP20. ELM70                                  | POI |        |              |
|             |       |    | 21      | 1  | 2         |   |    | H   |   | TO GRP20. ELM70                                  | POI |        |              |
|             |       |    | 21      | 2  | 1         |   |    | F   |   | FROM GRP19. ELMO2                                | 701 |        |              |
|             |       |    | 21      | 2  | 2         |   |    | F   |   | FROM GRP19. ELMO2                                | J01 |        |              |
|             |       |    | 21      | 3  | 1         |   |    | F   |   | CONNECTOR SYNCHRONIZER                           | POZ |        |              |
|             |       |    | 21      | 3  | 2         |   |    |     |   | CONNECTER SYNCHRONIZER                           | P02 |        |              |
|             |       |    | 21      | 40 | 24        |   |    |     |   | TIME CODE WRITE/READ UNIT                        | J07 |        | 1.820.721.81 |
|             |       |    | 21      | 41 | 24        |   |    |     |   | TIME CODE DELAY UNIT                             | J08 |        | 1.82C.722.81 |
|             |       |    | 21      | 42 | 24        |   |    |     |   | HF-DRIVER, CH 1                                  | 109 |        | 1.820.713.00 |
|             |       |    | 21      | 44 | 24        |   |    |     |   | RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1 | 711 |        | 1.820.712.81 |
|             |       |    | 21      | 45 | 24        |   |    |     |   | LINE AMPLIFIER. CH 1                             | J12 |        | 1.820.714.81 |
|             |       |    | 21      | 46 | 24        |   |    |     |   | MONO-STEREO-SWITCH                               | J13 |        | 1-820-720-00 |
|             |       |    | 21      | 47 | 24        |   |    |     |   | HF-DRIVER. CH 2                                  | J14 |        | 1.820.713.00 |
|             |       |    | 21      | 48 | 24        |   |    |     |   | RECORD AMPLIFIER. CH 2                           | J15 |        | 1.820.712.81 |
|             |       |    | 21      | 49 | 24        |   |    |     |   | REPRODUCE AMPLIFIER. CH 2                        | J16 |        | 1.820.710.81 |
|             |       |    | 21      | 50 | 24        |   |    |     |   | LINE AMPLIFIER. CH 2                             | J17 |        | 1.820.714.81 |
|             | 3     |    | 21      | 65 | 3         |   |    | U   |   | WIRE FIELD (TO GRP21. ELM70)                     |     |        |              |
|             | 3     |    | 21      | 70 | 10        |   |    | 8   |   | CONN. HEAD BLOCK ASSEMBLY                        | J18 |        |              |
|             |       |    | 27      | 2  | 3         |   |    |     |   | FROM GRP20. ELM16                                | P02 |        |              |
|             |       |    | 27      | 2  | 4         |   |    |     |   | FROM GRP20. ELM16                                | P02 |        |              |
|             |       |    | 28      | 2  | 3         |   |    |     |   | FROM GRP20. ELM19                                | POI |        |              |
|             |       |    | 28      | 2  | 4         |   |    |     |   | FROM GRP20. ELM19                                | P01 |        |              |
|             |       |    | 30      | 2  | 3         |   |    |     |   | FROM GRP20. ELMO2                                | POI |        |              |
|             |       |    | 3 C     | 2  | 4         |   |    |     |   | FROM GRP20. ELMO2                                | POI |        |              |
|             |       |    | 31      | 3  | 3         |   |    |     |   | FROM GRP2D. ELMOS                                | POZ |        |              |
|             |       |    | 31      | 3  | 4         |   |    |     |   | FROM GRP20. ELMOS                                | P02 |        | 14.          |
|             |       |    |         |    |           |   |    |     |   |  |     |        | -/-          |

| DLOR MI  | 32<br>32                                 | 2 1  |   | L V   | TYPE   | DESCRIPTION OF ELEMENT  |  | REMARK   | ELEMENT NR.   |
|----------|--|--|---|---|--|---|--|--|---|
|          | 32                                       | 2 1  |   |   |  |   |  |  |   |
|          | 33<br>33<br>36<br>36<br>37               | 2 4 1 1 1 1 1 1 1 1 1  |   |   | M<br>H   | OUTPUT OUTPUT FROM GRP2D, ELMOI FROM GRP2O, ELMOI TACHO SFMSOR TACHO SENSOR TACHO SENSOR TACHO SENSOR   | P01<br>P01<br>P01<br>P01<br>P01<br>P01 |  | 1.820.771.00<br>1.820.771.00<br>1.820.771.00  |
|          | 39<br>39<br>42<br>42                     | 1 4  |   |   |  | FROM GRP2O+ ELMO3 FROM GRP2O+ ELMO3 FROM GRP2O+ FLM12 FROM GRP2O+ ELM12   | POI                                    |  | 1.820.771.0   |
|          | 4 3<br>4 4<br>4 4                        | 1 1  |   |   |  | FROM GRP2O. ELMI3<br>FROM GRP2O. ELMI3<br>FROM GRP2O. ELMO6<br>FROM GRP2O. ELMO6<br>FROM GRP2O. ELMI1   | PO1<br>PO1<br>PO1                      |  |   |
|          | 45<br>46<br>46<br>47<br>47<br>48         | 1 4<br>1 4<br>1 3<br>1 4   |   |   |  | FROM GRP2O. ELMII<br>FROM GRP2O. ELMOT<br>FROM GRP2O. ELMOT<br>FROM GRP2O. ELMOB<br>FROM GRP2O. ELMOB<br>FROM GRP5O. ELMOB  |  |  |   |
|          | 50<br>50<br>50<br>50                     | 1 4<br>2 3<br>2 4  |   |   |  | FROM GRP2O. ELMIS GONNECTCR COMMAND UNIT CONNECTCR COMMAND UNIT   | PO1<br>PO1<br>PO3<br>PO3               |  |   |
|          | 50<br>51<br>51<br>59                     | 3 4<br>1 3<br>1 4  |   |   |  | CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50.ELMO2 FROM GRP50.ELMO2   | P07                                    |  |   |
|          | 59<br>60<br>60<br>60<br>70               | 1 10<br>2 2<br>2 15  |   |   |  |   | PO1<br>PO2<br>PO2<br>PO1               |  |   |
|          | 70<br>70<br>70<br>70<br>70               | 1 4<br>2 3<br>2 4  |   |   |  | RESERVE<br>RESERVE  | PO1<br>PO2<br>PO3<br>PO3               |  |   |
|          | 70<br>70<br>70<br>70                     | 5 4  |   |   |  | COMMANDS CH 03 COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 01 COMMANDS CH 02  | P04<br>P04<br>P05<br>P05<br>P06        |  |   |
|          | 76<br>70<br>70<br>71                     | 6 4<br>7 3<br>7 4<br>2 3   |   |   |  |   |  |  |   |
| 820.090. | OO + STL                                 | IDER A   | E20   | * T/  | TYPE   | DESCRIPTION OF ELEMENT  | 2/23 -                                 | 00   | *******************   |
|          |  |  | -   |   | <del></del>  |   |  |  | 70.01.0231  |
|          | 12<br>12<br>19<br>19                     | 4 1<br>5 7<br>1 24<br>2 24<br>14 1   |   |   | H<br>F<br>H  | CAPACITER CONNECTOR TO GRP32, ELMO1 FROM GRP32, ELMO2 TO GRP21, ELMO2 FUSE FAILURE DETECTOR FUSE FAILURE DETECTOR   | C04<br>P01<br>J01<br>P01<br>P14<br>P14 |  | 59.26.7103  |
|          | 20<br>20<br>20<br>21                     | 62 7<br>70 24<br>71 6<br>1 24  |   |   | L<br>F<br>F  | HIRE FIELD HIRE FIELD FROM GRP21. ELMOI TO CAPSTAN MOTOR DRIVE AMP. TO GRP20. ELMTO   | J13                                    |  |   |
| (        | 32<br>32<br>39<br>59<br>59               | 1 7<br>2 24<br>3 6<br>1 1  |   |   | F<br>H<br>H  | FROM GRP20. ELMO2 INPUT FREM GRP12. ELMO5 OUTPUT FREM GRP20, ELM71 FROM GRP20. ELM14 FROM GRP20. ELM14  | J01<br>P01<br>P03<br>P01<br>P01        |  |   |
|          | 18<br>18<br>18<br>18<br>18               | 1 3<br>1 4<br>1 5<br>1 6<br>1 7  |   |   | F<br>F<br>F<br>F<br>F  | FROM GRP31. ELMO1   | 701<br>701<br>701<br>701<br>701<br>701 |  |   |
|          | 1 &<br>1 8<br>1 8<br>1 8<br>1 8<br>1 8   | 2 3<br>2 6<br>2 9<br>2 12<br>3 3   |   |   | F<br>F<br>F<br>F<br>F  | TO GRP33, ELMOI TO GRP33, ELMOI TO GRP33, ELMOI TO GRP33, ELMOI TO GRP30, ELMOI TO GRP30, ELMOI   | P01<br>P01<br>P01<br>P01<br>P02<br>P02 |  |   |
|          | 18<br>18<br>30<br>30<br>30               | 3 12<br>1 3<br>1 6<br>1 9  |   |   | F<br>F<br>И<br>И<br>И  | TO GAP3O, ELMOI TO GAP3O, ELMOI FROM GAP3I, ELMOI OUTPUT  | J01<br>J01<br>J01<br>J01               |  |   |
|          | 31<br>31<br>31<br>31<br>31               | 1 2  |   |   | <br>H<br>H<br>H  | OUTPUT<br>OUTPUT<br>OUTPUT<br>OUTPUT<br>OUTPUT  | P01<br>P01<br>P01<br>P01<br>P01        |  |   |
|          | 31                                       | î ĩ  |   |   | H  | OUTPUT  | PO 1                                   |  |   |
| -        | R AG *********************************** | 37 37 37 39 39 39 39 42 42 42 43 43 44 44 45 55 46 46 47 47 47 47 48 88 88 88 88 88 88 88 88 88 88 88 88 | 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 37 1 3 42 1 4 43 1 3 44 1 3 45 1 4 46 1 3 46 1 3 46 1 3 46 1 3 47 1 4 48 1 3 48 1 3 48 1 3 50 1 4 50 2 3 50 2 4 50 3 3 50 2 4 50 3 3 50 2 4 51 1 4 59 1 5 50 2 4 70 3 3 70 2 4 70 3 3 70 3 4 70 4 3 70 4 3 70 7 4 70 3 3 70 7 4 70 6 3 70 6 4 70 7 3 70 7 4 71 2 3 71 2 4  21 2 4  22 1 2 4 23 1 7 24 2 20 14 1 20 14 2 20 62 6 20 62 6 20 62 6 20 62 7 20 70 24 20 14 1 20 14 1 20 14 1 20 14 2 20 62 6 20 62 6 20 62 6 20 62 6 20 62 6 20 62 7 20 70 24 20 14 1 | 37 1 3 37 1 4 39 1 3 39 1 4 42 1 3 42 1 4 43 1 3 4 44 1 3 44 1 3 45 1 4 46 1 3 46 1 4 47 1 3 47 1 4 48 1 3 48 1 4 48 1 3 48 1 4 50 1 3 50 2 4 50 3 5 50 2 4 50 3 5 50 1 4 50 2 3 50 2 4 50 1 3 50 2 1 50 2 1 50 2 1 50 2 1 50 2 2 50 2 2 50 2 3 50 2 4 50 3 3 50 1 4 50 1 3 50 1 4 50 1 3 50 1 4 50 2 3 50 2 4 50 3 3 50 3 4 51 1 3 3 51 1 4 59 1 5 59 1 10 60 1 10 60 2 2 60 2 15 70 1 4 70 2 3 70 2 3 70 3 4 70 3 3 3 70 7 4 71 2 3 71 2 4 71 2 3 71 2 4 71 2 3 71 2 4 71 2 3 71 2 4 71 2 2 71 6 2 71 7 71 9 1 2 | 37 1 3 37 1 4 39 1 3 39 1 4 42 1 3 42 1 4 43 1 3 44 1 3 44 1 3 44 1 3 45 1 4 46 1 3 46 1 4 47 1 3 48 1 3 48 1 3 48 1 3 48 1 3 50 1 2 50 1 4 50 2 3 50 2 4 50 3 3 50 3 4 51 1 3 51 1 4 59 1 5 59 1 10 60 1 10 60 2 2 60 2 15 70 1 3 70 2 3 70 2 4 70 3 3 70 2 4 70 3 3 70 3 4 70 4 3 70 2 3 70 6 4 70 7 3 70 7 4 71 2 4 70 7 3 70 7 4 71 2 4 70 7 3 70 7 4 71 2 4 70 7 3 70 7 4 71 2 4 70 7 3 70 7 4 71 2 4 | 44 1 3 44 1 4 45 1 3 46 1 3 46 1 3 46 1 3 47 1 3 48 1 3 48 1 3 48 1 3 50 1 2 50 1 4 50 2 3 50 2 4 50 3 3 50 3 4 51 1 1 51 1 1 60 2 2 2 50 3 1 70 1 3 70 1 3 70 1 3 70 2 3 70 2 3 70 3 3 70 3 3 70 3 3 70 3 3 70 3 3 70 3 3 70 4 4 70 4 2 70 4 3 70 7 3 70 7 3 70 7 3 70 7 4 71 2 3 70 7 4 71 2 3 70 7 4 71 2 3 71 2 4   LUR MI ASY GRP ELM PNT S LV TYPE  38 1 9 F 39 2 9 M  11 3 3 L 12 4 1 12 5 7 M 19 1 24 F 19 2 24 F 20 62 6 C 20 62 6 C 20 14 1 20 14 2 20 62 6 C 20 14 1 20 14 2 20 62 6 C 20 14 1 20 14 2 20 62 6 C 20 14 1 20 14 2 20 62 6 C 20 62 7 L 20 70 24 F 20 70 24 F 20 70 24 F 21 2 24 H 21 2 24 F 22 70 24 F 21 2 24 H 21 2 24 F 22 70 24 F 21 2 24 H 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 4 F 22 70 24 F 21 2 2 7 F 22 70 24 F 21 2 7 F 22 70 70 70 70 70 70 70 70 70 70 70 70 70 | ### ### ### ### ### ### ### ### ### ## | 44 1 3 FROM GREPO. ELNOS. POLITICAL SERVICES OF THE PROPERTY O | ### 1 3   FROM CAPPODE LENGEN ### 1 4   FROM CAPPODE LENGEN ### 1 5   FROM CAPPODE LENGEN ### 1 5   FROM CAPPODE LENGEN ### 1 6   FROM CAPPODE LENGEN ### 1 6   FROM CAPPODE LENGEN ### 1 7   FROM CAPPODE LENGEN ### 1 8   FROM CAPPODE LENGEN ### 1 9   FROM CAPPODE LENGEN ### 1 |

| SIGNAL NAME  |             |      | ASY GRP  |  |   |      |   | DESCRIPTION OF ELEMENT  |   | REMARK    | ELEMENT NR.                            |
|--------------|-------------|------|--|--|---|------|---|---|---|-----------|--|
| CONT.OF      | 2 2 2 2     |      | 33<br>33<br>34<br>34<br>34                         | 1<br>1<br>1  | 9<br>12<br>1A<br>1B   | -    | <br>#<br>K  | FROM GRP31, ELMOI<br>FROM GRP31, ELMOI<br>CAPACITER<br>CAPACITER<br>CAPACITER   | J01<br>J01  |           |  |
|              | 2 2 2       |      | 34<br>34<br>34                                     | 2 2 2  | 1 2 3   |      | H   | CONNECTOR (FROM GRP31) CONNECTOR (FROM GRP31) CONNECTOR (FROM GRP31)  | 701<br>701  |           |  |
| REMSUP       | 8 8         |      | 19<br>19<br>20<br>20<br>20                         | 1<br>2<br>16<br>16<br>62                             | 16<br>16<br>5<br>6  |      | <br>F M   | FROM GRP32, ELMOZ TO GRP21, ELMO2 PARALLEL REMOTE CONTROL PARALLEL REMOTE CONTROL NIRE FIELO  | J01<br>P01<br>P16<br>P16  |           |  |
|              | a           |      | 20<br>21<br>21<br>25<br>26<br>26<br>27<br>27<br>27 | 7C<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>2<br>2<br>2 | 16<br>16<br>16<br>9<br>3<br>8<br>3<br>5<br>6  |      | F<br>F<br>8   | FROM GRP21, ELMO1 TO GRP20, ELMO0 FROM GRP19, ELMO2 CONN. AUTOLOCATOR, REMOTE TIMER FROM GRP27, ELMO1 TO GRP25, ELMO1 TO GRP26, ELMO1 FROM GRP20, ELM16 FROM GRP20, ELM16 OUTPUT  | J13<br>P01<br>J01<br>J01<br>P01<br>P02<br>P01<br>P02<br>P02             |           |  |
| STABIN       | 2 2 2 2 2 2 |      | 11<br>12<br>12<br>12<br>12<br>12<br>32             | 1<br>1<br>2<br>5<br>5                                | 3<br>1<br>1<br>1<br>4<br>1  | -    | <br>L<br>L<br>M<br>M  |   | DZ01<br>C01<br>C02<br>P01<br>P01<br>J01<br>J01                          |           | 70.01.0221<br>59.26.7103<br>59.26.7103 |
| • STABSNS    | 3 3         |      | 19<br>19<br>20<br>20<br>20                         | 1<br>2<br>14<br>14<br>62                             | 17<br>17<br>7<br>8  |      | <br>F   | FROM GRP32. ELMO2 TO GRP21. ELMO2 FUSE FAILURE DETFCTOR FUSE FAILURE DETFCTOR WIRE FIELD  | J01<br>P01<br>P14<br>P14  |           |  |
|              | 3           |      | 20<br>21<br>21<br>32<br>59                         | 70<br>1<br>2<br>2<br>1                               | 17<br>17<br>17<br>17<br>7   |      | F<br>M<br>F<br>M  | FROM GRP21. ELMOI TO GRP2C. ELM70 FROM GRP19. ELM02 OUTPUT FROM GRP20. ELM14 FROM GRP20. ELM14  | J13<br>P01<br>J01<br>P01<br>P01   |           |  |
| • VMOTLET    | 2           |      | 33<br>36   | 3 2  | 1   | -    | <br>J   | FROM GRP33. ELM 03  | P02   |           |  |
| • WMGTRHT    | 2           |      | 3C<br>37   | 3 2  | 1 1   | -    | <br>J   | FROM GRP30. ELM 03  | P02   |           |  |
|              |             |      | 20   | 5  | 9   | -    | <br>  | SPOCLING MOTOR SUPPLY   | P05   |           |  |
| • MILLI S    | 1.820       | .090 | 2C<br>31   | UDE  | 9<br>N  | # L  | <br>TAPE DECK & AU  | L I S Y * 86/05   | 5/14  | 00        | PAGF 60                                |
| economical S | 1.820       | G90  | 2C<br>31<br>S<br>S<br>OO = 51                      | G<br>UDE   | 9<br>N<br>N<br>A  | E 20 | <br>M I R E   | FROM GRP2O. ELMOS  L I S T = 86/05  DIO   | P02   | * 11:48 * | PAGF 60 •                              |
| eccessors    | 1.820       | G90  | 2C<br>31   | G<br>UDEF  | 9<br>N<br>N<br>1 A<br>1 PNT   | E 20 | <br>W I R E   | FROM GRP20 - ELMO5  L I S T - 86/05  010 - 83/02  | P02   | 11:48     | PAGF 60 •                              |
| • WILLI S    | 1.820       | G90  | 2C 31 31 31 32 32 32 32 32 32 32 32 32 32 32 32 32 | 3<br>G<br>UDEF<br>1<br>2<br>61<br>70<br>1<br>2       | 9 N N N N N N N N N N N N N N N N N N N   | E 20 | <br>H I R E  TOPE OECK A AU  TYPE  F  M  L  F  M  F                     | FROM GRP2O. ELMOS  L I S Y * 86/05  DIO * 83/02  GESCRIPTION OF ELEMENT  FROM GRP32. ELMO2 TO GRP21. ELMO2 WIRE FIELD (FROM GRP2O. ELM7O) FROM GRP21. ELMO1 TO GRP2O. ELMO1 FROM GRP94. ELMO2   | J011 J011 J011 J011 J011 J011 J011 P017 P017 P017 P017 P017 P017 P017 P | 11:48     | PAGF 60 •                              |
| MILLI S      | COLOR COLOR | G90  | 2C 31 31 31 31 31 31 31 31 31 31 31 31 31          | 3<br>G G G G G G G G G G G G G G G G G G G           | 9<br>N<br>N<br>1 A<br>1 PNT<br>22<br>22<br>22<br>22<br>22<br>22<br>22<br>21<br>11<br>11<br>55<br>55<br>55<br>55<br>55<br>55<br>55<br>55<br>55<br>55<br>55 | S -  | <br>M I R E TAPE DECK & AU  TYPE  F M L F M F M M F M M M M M M M M M M | GESCRIPTION OF ELEMENT  GESCRIPTION OF ELEMENT  FROM GRP32. ELMO2 TO GRP21. ELMO2 TO GRP21. ELMO1 TO GRP20. ELM70 FROM GRP32. ELMO2 OUTPUT  FROM GRP32. ELMO2 TO GRP21. ELMO2 OUTPUT  FROM GRP32. ELMO2 TO GRP21. ELMO2 OUTPUT  FROM GRP32. ELMO2 TO GRP21. ELMO2 SPOOLING MOTOR ORIVE AMP. LEFT SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR TAPE TENSION SENSOR. LEFT TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PAMEL. EXTERNAL | P02   | 11:48     | PAGF 60 •                              |

| ME COLO                                | R MI                 |   |  |   | PNT   | s    | LV                                    | TYPE   | DESCRIPTION OF ELEMENT   |  | REMARK              | FLEMENT NR.                |
|--|----------------------|---|--|---|---|------|---------------------------------------|--|--|--|---------------------|----------------------------|
| .OF                                    |                      |   | 21   | 49  | 22  | -    |                                       |  | REPRODUCE AMPLIFIER. CH 2  | J16  |                     | 1.820.710.8                |
| 2                                      |                      |   | 21   | 50<br>65  |   |      |                                       | U  | WIRE FIELD (TO GRP21. ELM70)   | 317  |                     | 1.820.714.8                |
| 2                                      |                      |   | 2 I<br>2 B   | 7 C   | 5   |      |                                       | В  | CONN. HEAD BLOCK ASSEMBLY<br>From Grp20. Elm19   | J18  |                     |                            |
|  |                      |   | 30<br>31   | 3   | 5   |      |                                       |  | FROM GRP2O. ELMO2<br>FROM GRP2O. ELMO5   | PO 2   |                     |                            |
|  |                      |   |  | 2   | 11  |      |                                       | н  | OUTPUT<br>From Grp20. ELMO1  | PO1  |                     |                            |
|  |                      |   |  | 1   |   |      |                                       |  | TACHO SENSOR<br>Tacho Sensor   | PO1  |                     | 1.820.771.0<br>1.82C.771.0 |
|  |                      |   |  | 1   | 6   |      |                                       | F  | FROM GRP39. ELMO2<br>FROM GRP20. ELMO3   | J01<br>P01   |                     |                            |
|  |                      |   |  | 2   | 6   |      |                                       | W  | TO GRP38. ELMO1<br>FROM GRP20. ELM12   | P02  |                     |                            |
|  |                      | 1                                       | 43   | 1   | 5   |      |                                       |  | FROM GRP20. ELM13<br>FROM GRP20. ELM06   | PO1  |                     |                            |
|  |                      |   | 45   | 1   | 5   |      |                                       |  | FROM GRP20. ELM11<br>FROM GRP20. ELM14   | PO1  |                     |                            |
| 2                                      |                      | 1                                       | 60   | 1 2   | 9   |      |                                       | A  | HEAD BLCCK CONNECTOR<br>FROM GRP20+ ELM17  | P01  |                     |                            |
| 2                                      |                      | 9                                       | 60<br>70   | 3   | 1 5   |      |                                       | L  | REPRODUCE PREAMPLIFIER<br>FROM GRP20. ELMI8  | POI  |                     |                            |
|  |                      |   | 70   | 2   | 5   |      |                                       |  | RESERVE  | P07  |                     |                            |
|  |                      |   | 70<br>70   | 4   | 5   |      |                                       |  | RESERVE<br>COMMANOS CH 03  | P04  |                     |                            |
|  |                      |   | 7¢<br>70   | 6   | 5   |      |                                       |  | COMMANOS CH 01<br>COMMANOS CH 02   | P05  |                     |                            |
|  |                      |   | 70<br>71   | 7   | 5   |      |                                       |  | COMMANOS MONITOR AMPLIFIER FROM GRP70. ELMO7   | PO7<br>PO1   |                     |                            |
| 7                                      |                      |   | 19   | 1   | 15  | -    |                                       | F  | FROM GRP32. ELMO2  | J01  |                     |                            |
| 7                                      |                      |   | 20   |   | 4   |      |                                       | H  | TO GRP21. ELMO2 FUSE FAILURE DETECTOR  | P01  |                     |                            |
|  |                      |   | 20<br>20   |   | 5   |      |                                       |  | DISPLAY DRIVER DISPLAY DRIVER  | P15  |                     |                            |
|  |                      |   | 20   | 17  |   |      |                                       |  | TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL  | P17  |                     |                            |
| 7                                      |                      |   | 20   | 62  | 11  |      |                                       | U  | WIRE FIFLD<br>WIRE FIFLD   | 0.05.75  |                     |                            |
| 7                                      |                      |   | 20   | 62  | 13  |      |                                       | U<br>F   | WIRE FIFLO<br>FROM GRP21. ELMO1  | J13  |                     |                            |
| 7                                      |                      |   |  | 72  |   |      |                                       | F  | TO BRAKE SOLENOID. LEFT<br>TO BRAKE SOLENOID. RIGHT  | •••  |                     |                            |
|  |                      |   | 21   | 1 2   | 15  |      |                                       | H  | TO GRP20. ELM70<br>FROM GRP19. ELM02   | P01  |                     |                            |
| 7                                      |                      |   | 3 2  | 2   | 15  |      |                                       | H<br>H   | OUTPUT<br>BRAKE SCLENGED   | POI  |                     |                            |
| 7                                      |                      |   |  |   |   |      |                                       |  | BRAKE SCLENGIO   |  |                     |                            |
|  |                      |   | 41   | 1   |   |      |                                       | H  | COOM COOM CIMIE  | 001  |                     |                            |
| •                                      |                      |   | 41<br>50<br>50   | 1 1   | 6   |      |                                       | •  | FROM GRP20. ELM15<br>FROM GRP20. ELM15   | P01  |                     |                            |
| 1 STUDER A                             | AG<br>0.090          | • S                                     | 41<br>50<br>50<br>59<br>60<br>70   | 1<br>1<br>1<br>1<br>2<br>1  | 5<br>6<br>4<br>25<br>24   | 2C 4 | • • • • •                             | b I R E seeseesee  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM18  | P01<br>P02<br>P01  | • 1I:48<br>•••••••• | • PAGF 62                  |
| ************************************** | AG<br>0.090<br>***** | 00.<br>VZA                              | 41<br>50<br>50<br>59<br>60<br>70<br>I  | 1<br>1<br>1<br>1<br>2<br>1  | 5<br>6<br>4<br>25<br>24<br>N A E  | 2C 4 | • • • • • • • • • • • • • • • • • • • | W I R E  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01<br>P02<br>P01  | • 1I:48<br>•••••••• | PAGF 62                    |
| 1 STUDER A                             | AG<br>0.090<br>***** | 00.000<br>00.000<br>00.000              | 41<br>50<br>50<br>59<br>60<br>70<br>••••<br>STU  | 1<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2  | 5<br>6<br>4<br>25<br>24<br>N A E  | 2C 4 | • • • • • • • • • • • • • • • • • • • | M I R E  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  LIST  | P01<br>P01<br>P02<br>P01   | 00                  | P A G F 62 4               |
| 1 STUDER A                             | AG<br>0.090<br>***** | •                                       | 41<br>50<br>55<br>60<br>70<br>• • • • • • • • • • • • • • • • • • •  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2  | 5 6 4 25 24 N A 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | 2C 4 | • • • • • • • • • • • • • • • • • • • | M I R E  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T • 86/  L I S T • 86/  DESCRIPTION OF ELEMENT  RESERVE RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 02  FROM GRP5O. ELM03           | P01<br>P01<br>P02<br>P01   | 00                  | P A G F 62 4               |
| 1 STUDER A                             | AG<br>0.090<br>***** | -00 •                                   | 41<br>50<br>55<br>60<br>70<br>• • • • • • • • • • • • • • • • • • •  | 1<br>1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>6<br>7<br>7<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8   | 5 6 4 25 24   | 2C 4 | • • • • • • • • • • • • • • • • • • • | M I R E  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P02<br>P01   | 00                  | P A G F 62 4               |
| 1 STUDER A                             | AG<br>0.090<br>***** |   | 41<br>550<br>559<br>660<br>70<br>••••<br>STU<br>••••<br>48<br>448<br>448<br>550  | 1<br>1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2  | 5 6 4 25 24   | 2C 4 | • • • • • • • • • • • • • • • • • • • | TYPE   | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T 86/-  LOIO 83/-  DESCRIPTION OF ELEMENT  RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 02  FROM GRP5O. ELM03 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY | P01<br>P01<br>P02<br>P01<br>P05/14<br>P05/14<br>P05<br>P03<br>P04<br>P05<br>P06  | 00                  | P A G F 62 4               |
| 1 STUDER A                             | AG<br>0.090<br>***** | - S S S S S S S S S S S S S S S S S S S | 41<br>550<br>550<br>60<br>70<br>••••<br>••<br>57<br>77<br>77<br>77<br>77<br>77<br>77<br>77<br>77<br>77<br>77<br>77<br>77   | 1<br>1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3  | 5 6 4 25 24   | 2C 4 | • • • • • • • • • • • • • • • • • • • | M I R E  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02<br>P01<br>P02/23   | 00                  | P A G F 62 4               |
| 1 STUDER A                             | AG<br>0.090<br>***** | - S - S - S - S - S - S - S - S - S - S | 41<br>550<br>550<br>559<br>660<br>70<br>••••<br>STU<br>•••<br>48<br>48<br>48<br>48<br>48<br>550<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70  | 1<br>1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>6<br>1<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3   | 5 6 4 25 24 25 24 24 24   | 2C 4 | • • • • • • • • • • • • • • • • • • • | I R E  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P02<br>P01<br>P02<br>P03<br>P04<br>P05<br>P06<br>P02<br>P03<br>P04<br>P05<br>P06   | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 41<br>550<br>550<br>60<br>70<br>6  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>6<br>1<br>3<br>3<br>3<br>3<br>4<br>1<br>1<br>2<br>3<br>3<br>3<br>4<br>4<br>1<br>3<br>3<br>3<br>3<br>3<br>3<br>4<br>4<br>1<br>3<br>3<br>3<br>3<br>3  | 5 6 4 25 24   | 2C 4 | LV                                    | TYPE   | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  LI S T  | P01<br>P01<br>P02<br>P01<br>P05/14<br>P05/2/23   | 00                  | P A G F 62                 |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 41<br>550<br>559<br>670<br>677<br>687<br>770<br>770<br>770<br>770<br>488<br>488<br>550<br>225<br>770<br>770<br>770<br>770<br>770<br>770<br>770<br>770<br>770<br>77   | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>7   | 5 6 4 25 24   | 2C 4 | LV                                    | TYPE   | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62                 |
| I STUDER A                             | AG<br>0.090<br>***** | - S - O - O - O - O - O - O - O - O - O | 41<br>550<br>550<br>670<br>• • • • • • • • • • • • • • • • • • •   | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>3<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>8<br>8<br>7<br>8<br>8<br>8<br>8<br>8<br>9<br>8<br>9<br>8<br>9<br>8<br>9<br>8<br>9<br>8<br>9   | 5 6 4 25 24   | 2C 4 |                                       | TYPE   | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62                 |
| I STUDER A                             | AG<br>0.090<br>***** | - S - S - S - S - S - S - S - S - S - S | 41550<br>550<br>670<br>6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>2<br>3<br>3<br>3<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1  | 5 6 4 5 2 5 2 4 4 2 5 5 5 5 5 2 2 0 5 5 5 2 2 0 5 5 2 2 0 5 5 2 2 0 5 5 5 5 | 2C 4 |                                       | TYPE  B B B B H C  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62                 |
| I STUDER A                             | AG<br>0.090<br>***** | - S - S - S - S - S - S - S - S - S - S | 41550956070  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>2<br>3<br>3<br>3<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>7<br>7<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8   | 5 6 4 5 2 4   | 2C 4 |                                       | TYPE   | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62                 |
| I STUDER A                             | AG<br>0.090<br>***** | - S - S - S - S - S - S - S - S - S - S | 4155509<br>5009<br>670<br>6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>1<br>2<br>3<br>3<br>3<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>7<br>7<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8   | 5 6 4 5 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | 2C 4 |                                       | TYPE  B B B B H C  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | - S - O - O - O - O - O - O - O - O - O | 41550956070  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>3<br>4<br>5<br>6<br>6<br>1<br>3<br>3<br>3<br>3<br>1<br>4<br>1<br>2<br>7<br>7<br>8<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8   | 5 6 4 5 2 5 4   | 2C 4 |                                       | TYPE  B B B B H C  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01 P01 P07 P01 P07 P01 P07 P01 P07 P08  | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY (                                   | 4155509<br>5070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>6070<br>607 | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>3<br>4<br>5<br>6<br>6<br>1<br>3<br>3<br>3<br>3<br>1<br>4<br>1<br>2<br>7<br>7<br>8<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8   | 5 6 4 5 2 5 4   | 2C 4 |                                       | TYPE  B B B B H C  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02/23   | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 415509<br>5670<br>• • I • I •  | 1<br>1<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>3<br>4<br>5<br>6<br>6<br>1<br>3<br>3<br>3<br>3<br>4<br>1<br>2<br>7<br>7<br>7<br>7<br>8<br>8<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1<br>8<br>1  | 5 6 4 5 2 5 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8   | 2C 4 | LV                                    | TYPE  B B B B H C  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02<br>P03<br>P04<br>P05<br>P06<br>P02<br>P03<br>P04<br>P05<br>P06<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01                                | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 415559900  | 1 1 1 2 1 1 2 2 1 1 2 2 3 3 3 3 4 4 2 2 7 8 8 14 61 7 7 0 1 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 1 2 2 2 2 1   | 5 6 4 5 2 5 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8   | 2C 4 | LV                                    | B B B B B B B B B B B B B B B B B B B  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P01<br>P02<br>P01<br>P02/23 -<br>P02/23 -<br>P03<br>P04<br>P05<br>P06<br>P06<br>P07<br>P08<br>P14<br>J01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P   | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 415509<br>5009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009<br>6009 | 1 1 1 1 2 1 1 1 2 2 1 1 1 2 2 3 3 4 4 5 6 6 1 3 3 3 3 4 4 1 2 7 8 8 1 6 1 7 7 0 1 2 2 2 1 1 1 1 2 6 7 7 0 1 2 2 7 7 0 1 2 7 7 0 1 2 2 7 7 0 1 2 2 7 7 0 1 2 2 7 7 0 1 2 2 7 7 0 1 2 2 7 7 0 1 2 7 | 5 6 4 5 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | 2C 4 | LV                                    | B B B B B B B B B B B B B B B B B B B  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P07<br>P01<br>P02<br>P03<br>P04<br>P05<br>P06<br>P03<br>P06<br>P03<br>P06<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01                                | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 415509<br>5007<br>• • • • • • • • • • • • • • • • • • •  | 1 1 1 1 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 3 3 3 3   | 5 6 45 25 24 A 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  | 2C 4 | Ly                                    | B B B B B B B B B B B B B B B B B B B  | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01<br>P01<br>P01<br>P02<br>P01<br>P02/23 -<br>P02/23 -<br>P03<br>P04<br>P05<br>P06<br>P02<br>P03<br>P04<br>P05<br>P06<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01<br>P01 | 00                  | P A G F 62 4               |
| I STUDER A                             | AG<br>0.090<br>***** | ASY                                     | 415509<br>5007<br>• • I • • • • • • • • • • • • • • • • •  | 1 1 1 1 2 1 1 1 2 2 1 1 1 2 2 3 3 3 3 3   | 5 6 45 224  | 2C 4 | Ly                                    | T R E  PE DECK & A  PE DECK & A  TYPE  B  B  C  B  C  C  C  C  C  C  C  C  C | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01 P01 P01 P02 P02 P03 P04 P05 P06 P02 P03 P04 P05 P06 P01  | 00                  | P A G F 62 4               |
| I STUDER /                             | AG<br>0.090<br>***** | ASY                                     | 4155095670   | 1 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 2 1   | 5 6 45 25 4   | 2C 4 | LV                                    | B B B B B B B B B B B B B B B B B B B  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01 P01 P07 P08 P02 P03 P04 P05 P06 P02 P03 P04 P01  | 00                  | P A G F 62                 |
| I STUDER /                             | AG<br>0.090<br>***** | ASY (                                   | 410555670  | 1 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1   | 5 6 45 25 4   | 2C 4 |                                       | B B B B B B B B B B B B B B B B B B B  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01 P01 P02 P03 P04 P05 P06 P02 P03 P06 P06 P01  | 00                  | P A G F 62                 |
| I STUDER /                             | AG<br>0.090<br>***** | ASY (                                   | 41055567   | 1 1 1 1 2 1   | 5 6 25 24 A & & & A & & & & & & & & & & & & &   | 2C 4 |                                       | B B B B B B B B B B B B B B B B B B B  | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01 P01 P07 P08  | 00                  | P A G F 62                 |
| I STUDER /                             | AG<br>0.090<br>***** | ASY                                     | 4105567  | 1 1 1 1 2 1   | 5 6 25 24 A & & & A & & & & & & & & & & & & &   | 2C 4 |                                       | B B B F M U F F M M F F F F F F F F F F F F F                                | FROM GRP20. ELM15 FROM GRP20. ELM14 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18  L I S T   | P01 P01 P01 P02 P03 P04 P05 P06 P02 P03 P06 P06 P01  | 00                  | P A G F 62 4               |
| I STUDER /                             | AG<br>0.090<br>***** | ASY                                     | 4105567  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 6 45 24 N E 6 6 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 2C 4 |                                       | T R E  PE DECK & A  TYPE  B  B  U  F  M  F  M  F  F  F  F  F  F  F  F  F     | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18  L I S T   | P01 P01 P01 P02 P02 P03 P04 P05 P06 P02 P03 P06 P06 P01  | 00                  | P A G F 62 4               |
| I STUDER /                             | AG<br>0.090<br>***** | ASY (                                   | 41055670   | 1 1 1 1 2 1   | 5 6 45 224  | 2C 4 |                                       | B B B F M U F F M M F F F F F F F F F F F F F                                | FROM GRP2O. ELM15 FROM GRP2O. ELM14 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM17 FROM GRP2O. ELM18   **********************************   | P01 P01 P07 P08 P02 P03 P04 P05 P06 P02 P03 P04 P01  | 00                  | P A G F 62 4               |

| SIGNAL NAME | COLOR            | MI ASY GE   | P EL  | M PNT S  | LV   | TYPE            | DESCRIPTION OF ELEMENT   |  | REMARK | ELEMENT NR.   |
|-------------|------------------|---|---|--|------|-----------------|--|--|--------|---|
| CONT.OF     |                  | 30<br>30<br>30  | 1 1   | 8  | -11  |                 | FROM GRP31. ELMO1<br>FROM GRP31. ELMO1<br>FROM GRP31. ELMO1<br>FROM GRP31. ELMO1   | J01<br>J01<br>J01<br>J01   |        |   |
|             |                  | 31  | 1   | 10   |      | H               | OUTPUT   | PO1  |        |   |
|             |                  | 31<br>31  | 1   | 11   |      | ä               | OUTPUT<br>OUTPUT   | PO1  |        |   |
|             |                  | 31  |   | 13   |      | H               | CUTPUT   | PO1  |        |   |
|             |                  | 31  |   |  |      | M<br>M          | CUTPUT   | POI  |        |   |
|             |                  | 31  |   | 5  |      | F<br>F          | CONNECTER TO CAPACITOR (GRP34) CONNECTER TO CAPACITOR (GRP34)  | P03  |        |   |
|             |                  | 31  | 4   | 6 2  |      | F               | CONNECTOR TO CAPACITOR (GRP34)<br>FROM GRP31. ELMO1  | P03  |        |   |
|             |                  | 33  | 1   | 5  |      | H               | FROM GRP31. ELMOI<br>FROM GRP31. ELMOI   | 701<br>701   |        |   |
|             | 6                | 33  | 1   | 11   |      | Ĥ               | FROM GRP31. ELMOI<br>CAPACITOR   | JOI  |        |   |
|             | 6                | 34  | 1   | 2B   |      | ĩ               | CAPACITOR<br>CAPACITOR   |  |        |   |
|             | 6                | 34  | 2   | 4  |      | H               | CONNECTOR (FROM GRP31)<br>CONNECTOR (FROM GRP31)   | J01  |        |   |
|             | 6                | 34  |   | 6  |      | Ä               | CONNECTOR (FROM GRP31)   | J01  |        |   |
| STABIN      | 6                | 11  |   |  | - 71 | Ļ               | RECTIFIER<br>CAPACITOR   | DZ02<br>C03  |        | 70.01.023   |
|             | ů                | 12  | 5   | 6  |      | H               | CONNECTOR TO GRP32. ELMO1<br>INPUT FROM GRP12. ELMO5   | PO1  |        | 59.26.710   |
| STABSNS     | 5                |   |   | <del>-</del><br>18   |      | -               | FROM GRP32. ELMO?  | 701<br>701   |        |   |
| 3180303     | 5                | 19  | 2   | 18   |      | H               | TO GRP21. ELMO2  | POI  |        |   |
|             | 5                | 20  |   | 5  |      | u               | FUSE FAILURE DETECTOR WIRE FIELD   | P14  |        |   |
|             | 5                | 20  | 1   | 18   |      | H               | FROM GRP21. ELMO1<br>TD GRP2C. ELM70   | J13  |        |   |
|             |                  | 3 2   | 2   | 18   |      | H               | FROM GRP19. EL NO2<br>DUTPUT   | J01<br>P01   |        |   |
|             |                  |   |   |  |      |                 | FROM GRP20. ELM14  | POI  |        |   |
| VMOTLFT     | 3                | 3:<br>36  |   |  |      | J               | FROM GRP33. ELM 03   | P02  |        |   |
| VMCTRHT     | 0                | 3(  | 2   |  |      | J               | FROM GRP30. ELM 03   | P02  |        |   |
| YSUP        |                  | 20  | 5   |  |      |                 | SPOOLING MOTOR SUPPLY<br>TAPE DECK PERIPHERY CONTR.  | P05  |        | 1.820.762.0   |
| 15.0        |                  | 31  |   |  |      |                 | FROM GRP20. ELMO5  | P02  |        |   |
| 15.0        | 6                | 19  |   |  |      | F               | FROM GRP32. ELMO?<br>TO GRP21. ELMO?   | JO1  |        |   |
|             | 1.820.0          | 90.00   | l d   | S N A  | C *  | TAPE DECK & AUG | SPOOLING MOTOR DRIVE AMP. LEFT   | P01  | 11:48  | **************************************  |
| *******     | 1.820.0          | 20<br>* S   | l d   | 6<br>5 N A<br>ER A 82  | C *  | h I R E         | SPOOLING MOTOR DRIVE AMP. LEFT  L 1 S T  | P01  | 11:48  | **************************************  |
| IGNAL NAME  | 1.820.0<br>COLOR | 20<br>* S   | STUDE   | 6 N A EER A E2LM PNT   | C *  | h I R E         | SPOOLING MOTOR DRIVE AMP. LEFT  L 1 S T * 86/C  DIO * 83/O   | P01  | - 00   | • PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | #1 ASY G  | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A ER A £2  | C *  | h I R E         | SPOOLING MOTOR DRIVE AMP. LEFT  1 S T * 86/C  DIO * 83/O  DESCRIPTION OF ELEMENT  SPOOLING MOTOR DRIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMP. RIGHT PAR. CONT. INT. SYNCHRONIZER   | P01  ****** 5/14  ***** 2/23  *****  P02  P03  P04  P05  P06  P09  | - 00   | • PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  | C *  | h I R E         | DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. LEFT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT)  | P01  ****** 5/14  ***** 2/23  *****  P02  P03  P04  P05  P06  P09  | - 00   | • PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | 20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>2 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A E2 PNT   | C *  | h I R E         | SPOOLING MOTOR DRIVE AMP. LEFT  L 1 S T # 86/C  DESCRIPTION OF ELEMENT  SPOOLING MOTOR DRIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT) MOVE SENSOR (SPOOLING M. RIGHT)  | P01<br>5/14<br>*******<br>P02<br>P03<br>P04<br>P05<br>P06<br>P09<br>P10<br>P11   | - 00   | • PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2   | 6 N A E2 N A E2 N A E E A E E E E E E E E E E E E E E E  | C *  | h I R E         | SPOOLING MOTOR ORIVE AMP. LEFT  L 1 S T 86/C  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSIAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTORS SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT  | P01  ****** 5/14  ***** 2/23  ***** P02 P03 P04 P05 P06 P09 ) P10 P11 P12 P13  | - 00   | • PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2   | 6 N A E200000000000000000000000000000000000  | C *  | h I R E         | SPOOLING MOTOR ORIVE AMP. LEFT  L 1 S T 86/C  DESCRIPTION OF ELEMENT  SPOOLING MOTOR DRIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLETIER PAR. CONT. INT. SYNCHROMIZER SPOOLING MOTORS SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL, EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER  | P01  ****** 5/14  ***** 2/23  *****  P02  P03  P04  P06  P09  ) P10  P11  P12  P13  P14  P17   | - 00   | PAGE 64   |
| IGNAL NAME  | 1.820.0<br>COLOR | 20  ***********************************   | 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 6 N A E2 N A E2 N A E E E E E E E E E E E E E E E E E E  | C *  | h I R E         | SPOOLING MOTOR ORIVE AMP. LEFT  L 1 S T 86/C  DESCRIPTION OF ELEMENT  SPOOLING MOTOR DRIVE AMP. RIGHT CAPSTAM MOTOR DRIVE AMP. RIGHT CAPSTAM MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU—METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE   | P01  ******  5/14  *****  P02  P03  P06  P05  P06  P11  P12  P12  P17  P17  P19  | - 00   | 1.820.759. 1.820.764. 1.820.764.  |
| IGNAL NAME  | 1.820.0<br>COLOR | # S S S S S S S S S S S S S S S S S S S   | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A & & & & & & & & & & & & & & & & & &  | C *  | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L 1 S T *********************************  | P01  5/14  5/14  2/23  P02  P03  P04  P05  P06  P09  P11  P12  P17  P17  P17  P19  J01  J02  | - 00   | 1.920.759.1.820.777.1.820.777.1   |
| IGNAL NAME  | 1.820.0<br>COLOR | # S S S S S S S S S S S S S S S S S S S   | 1 0 0 0 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1   | 6 N A E2 N A E2 N A E E E E E E E E E E E E E E E E E E  | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  ***********************************  | P01  ****** 5/14  2/23  ***** P03 P04 P05 P06 P11 P12 P13 P14 P17 P18 P19 J02 J03 J03 J03  | - 00   | 1.920.759. 1.820.764. 1.820.777. 1.820.762. 1.820.762.  |
| IGNAL NAME  | 1.820.0<br>COLOR | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 0 0 0 0 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 1 1   | 6 N A ER A E21  WHER A E21  WHER A E21  C 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  | C •  | TAPE DECK & AUG | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  B  | P01  *******  ******  ******  *****  *****  ****   | - 00   | 1.970.759.<br>1.920.764.<br>1.820.774.<br>1.820.776.<br>1.820.776.<br>1.820.776.<br>1.820.776.  |
| IGNAL NAME  | 1.820.0<br>COLOR | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A S N A  | S LV | TAPE DECK & AUG | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR DRIVE AMP. RIGHT  CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTIOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK SERIPHERY CONTR. TAPE DECK SERIAL INTERFACE   | P01  *******  */***  */***  *****  */**  *****  *****  *****  *****  *****  ****   | - 00   | 1.920.759.<br>1.920.759.<br>1.820.764.<br>1.820.727.<br>1.820.727.<br>1.820.762.<br>1.820.762.<br>1.820.760.<br>1.820.763.<br>1.820.763.  |
| IGNAL NAME  | 1.820.0<br>COLOR | #1 A5Y G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A A E2 N A E A E A E A E A E A E A E A E A E A  | C •  | TAPE DECK & AUG | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SERSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SERSOR TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE SMPTE/FBU INTERFACE  | P01  P02  P02  P03  P04  P05  P06  P09  P11  P12  P13  P14  J01  J04  J04  J05  J06  J09  J09  J09  J09  J09  J09  J09   | - 00   | 1.970.759.<br>ELEMENT NR.<br>1.820.764.<br>1.820.776.<br>1.820.776.<br>1.820.776.<br>1.820.776.<br>1.820.766.<br>1.820.766.<br>1.820.766.<br>1.820.766.<br>1.820.753.<br>1.820.753.<br>1.820.753.   |
| IGNAL NAME  | L 0.20 COLOR     | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 0 0 0 0 0 0 0 1 1 1 2 2 0 0 0 1 1 1 2 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 2 0 0 0 1 1 1 1 | 6  | C •  | TAPE DECK & AUG | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  DIO * 83/O  SPOOLING MOTOR ORIVE AMP. RIGHT  SPOOLING MOTOR ORIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN CONTROL TAPE OECK PERIPHERY CONTR. TAPE OECK PERIPHERY CONTR. TAPE OECK PERIPHERY CONTR. TAPE OECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE OECK SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MASTER PERIPHERY CONTROLLER   | P01  ******  *****  P02  P03  P04  P05  P06  P09  P11  P12  P13  P14  P17  P17  P19  J01  J03  J04  J05  J06  J07  J07  J07  J07  J07  J07  J07  | - 00   | 1.920.759.<br>1.820.764.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.763.<br>1.820.763.<br>1.820.763.<br>1.820.753.<br>1.820.753.  |
| IGNAL NAME  | 1.820.0<br>COLOR | # S S S S S S S S S S S S S S S S S S S   | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 6  | S Lv | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  BESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PAMPL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE CAPSTAN CONTROL TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK CONTROL TAPE DECK CONTROL TAPE DECK SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MASTER PERIPHERY CONTROLL | P01  P02  P02  P03  P04  P05  P06  P01  P11  P12  P13  P17  P17  P17  P19  J01  J04  J05  J06  J09  J11  J12  J12  J13   | - 00   | 1.920.759.<br>1.820.764.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.763.<br>1.820.763.<br>1.820.763.<br>1.820.753.<br>1.820.753.  |
| IGNAL NAME  | 1.820.c          | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A & & & & & & & & & & & & & & & & & &  | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  DIO * 83/O  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR ORIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PAMEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER WIRE FIELD (FROM GRP2O, ELM7O) FROM GRP2O. ELMOTO FROM GRP2O. ELMOT | P01  P02  P02  P03  P04  P05  P06  P07  P11  P12  P13  P17  P17  P17  P17  P17  P17  P17   | - 00   | 1.920.759.<br>1.820.764.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.762.<br>1.820.763.<br>1.820.763.<br>1.820.763.<br>1.820.753.<br>1.820.753.  |
| IGNAL NAME  | 1.820.c          | 20<br>************************************                                      | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  | S Lv | TAPE DECK & AUG | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT TACHO SENSOR (SPOOLING M. RIGHT TACHO SENSOR SPOOLING M. RIGHT TACHO SENSOR SENSOR, LEFT TACHO SENSOR SENSOR, LEFT TACHO SENSOR RESION SENSOR, LEFT TACHO SENSOR SENSOR SENSOR TACHO SENSOR  | P01  ******  *****  P02  P03  P04  P05  P06  P11  P13  P17  P17  P17  P17  P17  P17  | - 00   | 1. 920.759.<br>1. 920.759.<br>1. 820.764.<br>1. 820.762.<br>1. 820.762.<br>1. 820.762.<br>1. 820.762.<br>1. 820.763.<br>1. 820.763.<br>1. 820.753.<br>1. 820.753.<br>1. 820.753.<br>1. 820.753.   |
| IGNAL NAME  | 1.820.c          | 20<br>************************************                                      | 1   | 6  | S LV | TYPE            | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MASTER PERIPHERY M | P01  ******  *****  P02  P03  P04  P05  P06  P10  P11  P17  P17  P17  P17  P17  P17  | - 00   | 1.970.759.1<br>820.764.1<br>820.776.1<br>820.776.1<br>820.776.1<br>820.776.1<br>820.763.1<br>820.763.1<br>820.753.1<br>820.753.1<br>820.753.1<br>820.753.1<br>820.753.1<br>820.753.1  |
| IGNAL NAME  | 1.820.c          | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  | S LV | TYPE            | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHROMIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK SERIAL INTERFACE MASTER PERIPHERY CONTROLLER HIRE FIELD (FROM GRP2O, ELM701 FROM GRP19, ELMO2 CONNECTOR SYNCHROMIZER TIME CODE MENTE/PEAD UNIT | P01  ***********************************   | - 00   | ELEMENT NR.  1.920.759.0 1.820.764.0 1.820.7761.0 1.820.766.0 1.820.766.0 1.820.766.0 1.820.766.0 1.820.766.0 1.820.778.0 1.820.778.0 1.820.778.0 1.820.778.0   |
| IGNAL NAME  | 1.820.c          | #1 A5Y G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 1 2 2 3 3 4 5 5 5 1 1 1 4 4 2 3 4 5 6 6 1 1 1 1 1 1 4 4 5 5 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 6  | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L 1 S T * 86/C  ***********************************  | P01  ***********************************   | - 00   | 1.920.759.0  1.920.759.0  1.920.759.0  1.820.7764.0  1.820.777.0  1.820.772.1  1.820.763.0  1.820.763.0  1.820.778.0  1.820.778.0  1.820.778.0  1.820.778.0   |
| IGNAL NAME  | 1.820.c          | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | RP EL   | 6  | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  BESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER MIRE FIELD (FROM GRP2O, ELM7O) FROM GRP2O. ELMO TO GRP2O. ELMO CONNECTOR SYNCHRONIZER TIME CODE MELTE/READ UNIT TIME CODE DELAY UNIT HE-ORIVER, CH 1 REPRODUCE AMPLIFIER. CH 2 RECORD AMPLIFIER. CH 2 RECORD AMPLIFIER. CH 2   | P01  ******  *****  *****  *****  ****  ****   | - 00   | ELEMENT NR.  1.820.759.0 1.820.764.0 1.820.777.0 1.820.762.0 1.820.762.0 1.820.753.1 1.820.753.1 1.820.753.1 1.820.778.0 1.820.778.0 1.820.778.0 1.820.778.0  |
| IGNAL NAME  | 1.820.COLOR      | ## ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  BESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR. RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PAMPL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MASTER MAS | P01  ******  *****  P02  P03  P04  P05  P06  P09  P11  P13  P17  P17  P17  P17  P17  P17   | - 00   | 1.920.759.6 ELEMENT NR.  1.820.764.6 1.820.772.1 1.820.761.6 1.820.763.1 1.820.763.1 1.820.763.1 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6  |
| IGNAL NAME  | 1.820.c          | 20<br>************************************                                      | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6 N A A E2 P P P P P P P P P P P P P P P P P P   | S LV | TYPE            | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  ***********************************  | P01  ******  *****  P02  P03  P04  P07  P07  P08  P08  P09  P11  P13  P17  P17  P17  P19  J01  J03  J04  J05  J06  J07  J07  J07  J07  J07  J07  J07   | - 00   | ELEMENT NR.  1.920.759-0 1.820.764-0 1.820.772-1 1.820.7761-0 1.820.7661-0 1.820.7661-0 1.820.7661-0 1.820.7661-0 1.820.7781-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.7783-0 1.820.772-0 1.820.772-0 1.820.772-0 1.820.772-0 1.820.772-1 |
| IGNAL NAME  | 1.820.4          | 20<br>************************************                                      | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  | S LV | TYPE  L F H F F | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MIRE FIELD (FROM GRP2O. ELM70) FROM GRP19. ELMO1 TO GRP2O. ELMO1 TO GRP2O. ELMO1 TO GRP2OL ELMO1 THE CODE WRITE/FEAD UNIT THE CODE MITE/FEAD UNIT THE CODE MITE/FEAR. CH 1 MOND-STEREO-SHITCH MF-ORIVER. CH 2 REPRODUCE AMPLIFIER. CH 2  | P01  ******  *****  *****  P02  P03  P04  P11  P17  P18  P19  J01  J02  J03  J04  J05  J06  J09  J11  J12  J13  P01  J11  J12  J13  P01  J11  J13  J14  J15  J16  J17  J18  P01  J18  P01  J18 | - 00   | 1.920.759.6 ELEMENT NR.  1.820.764.6 1.820.772.1 1.820.761.6 1.820.763.1 1.820.763.1 1.820.763.1 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6 1.820.778.6  |
| SIGNAL NAME | 1.820.4          | 20<br>************************************                                      | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 6  S N A  R A E2  N PN1  2 6  3 6  4 6  6 6  6 6  6 6  7 6  8 7 6  8 8 188  8 1 | S LV | TYPE  L F H F F | DESCRIPTION OF ELEMENT  DESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, LEFT TAPE TENSION TORRUPER CONTROL UNIT CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTROLLER TAPE DECK PERIPHERY CONTROLLER TAPE DECK SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER MIRE FIELD (FROM GRP2O, ELM70) FROM GRP19, ELMO2 CONNECTOR SYNCHROMIZER TIME CODE MITTE/FRAD UNIT TIME CODE MENTE/FRAD UNIT TIME CODE DELAY UNIT HE-ORDIVER. CH 1 REPRODUCE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 REPROD | P01  ******  *****  P02  P03  P04  P05  P06  P07  P11  P13  P17  P17  P17  P17  P17  P1  | - 00   | ELEMENT NR.  1.920.759.0 1.820.764.0 1.820.727.0 1.820.727.0 1.820.762.0 1.820.761.0 1.820.763.0 1.820.763.0 1.820.778.0 1.820.778.0 1.820.778.0 1.820.778.0  |
|             | 1.820.4          | #1 ASY G 22 22 22 22 22 22 22 22 22 22 22 22 22                                 | 1   | 6  R A E2  N PNT  C 6  C 6  C 6  C 7  C 7  C 8  C 8  C 8  C 8  C 8  C 9  C 6  C 6  C 6  C 7  C 7  C 8  C 8  C 8  C 8  C 8  C 8   | S LV | TYPE  L F H F F | SPOOLING MOTOR ORIVE AMP. LEFT  L I S T * 86/C  BESCRIPTION OF ELEMENT  SPOOLING MOTOR ORIVE AMP. RIGHT CAPSTAN MOTOR DRIVE AMPLIFIER PAR. CONT. INT. SYNCHRONIZER SPOOLING MOTOR SUPPLY EXT. SENSORS TACHO SENSOR (SPOOLING M. LEFT) TACHO SENSOR (SPOOLING M. RIGHT MOVE SENSOR TAPE TENSION SENSOR, RIGHT FUSE FAILURE DETECTOR TO HEAD BLOCK ASSEMBLY VU-WETER PANEL. EXTERNAL SOURCE SELECTOR SPOOLING MOTOR ORIVER CAPSTAN INTERFACE CAPSTAN INTERFACE TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MASTER SERIAL INTERFACE MASTER PERIPHERY CONTROLLER WIRE FIELD (FROM GRP2O. ELM7O) FROM GRP2O. ELMO CONNECTOR SYNCHROMIZER TIME CODE WRITE/READ UNIT TIME CODE DELAY UNIT THE CODE WRITE/READ UNIT TIME CODE DELAY UNIT THE CODE WRITE/READ UNIT TIME CODE DELAY UNIT THE CODE CELAY UNIT THE CODE DELAY UNI | P01  *******  */*****  ******  ******  *****  *****  ****  | - 00   | • PAGE 64   |

| • WILLI  | 1.82C   | **** | S<br>*******<br>******   | ****   | R A  | £2C |    |   | K & AUDIO | **********************   | 102/23 -   | - 00     | •   |
|--|---|------|--|--|--|-----|----|---|-----------|--|--|----------|---|
| SIGNAL NAME  | COLOR   | MI   | ASY GR   | P FL   | M PNT  | s   | LV | TYPE  |           | DESCRIPTION OF ELEMENT   |  | REMARK   | ELEMENT NR.   |
| << CONT.CF   | :   |      | 39<br>42<br>43<br>44<br>45   | 2<br>1<br>1<br>1                                 | 5<br>6<br>6<br>6   | -   | -  | H   |           | TO GRP38. ELMO1 FROM GRP20, ELM12 FROM GRP20, ELM13 FROM GRP20, ELM06 FROM GRP20, ELM11  | P02<br>P01<br>P01<br>P01<br>P01  |          |   |
|  | 6   |      | 59<br>60<br>60<br>60<br>70   | 1 2 3 1  | 13<br>28<br>16<br>8  |     |    | A<br>L  |           | FROM GRP20, ELM14 HEAD BLCCK CONNECTOR FROM GRP20, ELM17 REPRODUCE PREAMPLIFIER FROM GRP20, ELM18  | P01<br>P02<br>P01  |          |   |
|  |   |      | 70<br>70<br>70<br>70<br>70<br>70                                     | 2<br>3<br>4<br>5<br>6<br>7<br>2                  | 6<br>6<br>6<br>6   |     |    |   |           | RESERVE RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 02 COMMANDS MONITOR AMPLIFIER FROM GRP70. ELMO7  | P02<br>P03<br>P04<br>P05<br>P06<br>P07<br>P01  |          |   |
| -26.0  | 9   |      | 19<br>15<br>20<br>20   | 1<br>2<br>7<br>8                                 | 19<br>19<br>6<br>6   | -   |    | F<br>M  |           | FRC# GRP32. ELMO2<br>TO GRP21. ELMO2<br>TAPE LIFT MOTOR, LEFT<br>TAPE LIFT MOTOR. RIGHT  | J01<br>P01<br>P07<br>P08   |          |   |
|  | 9   |      | 20<br>20<br>20<br>21<br>21   | 14<br>61<br>70<br>1<br>2                         |  |     |    | L<br>F<br>M<br>F  |           | FUSE FAILURE DETECTOR WIRE FIELD (FROM GRP20, ELM70) FROM GRP21, FLM01 TO GRP20, ELM70 FROM GRP19, ELM02   | J13<br>P01<br>J01  |          |   |
|  |   |      | 32<br>46<br>47<br>59   | 2<br>1<br>1                                      | 6  | _   |    | м   |           | OUTPUT<br>FROM GRP20. ELMO7<br>FROM GRP20. ELM08<br>FROM GRP20. ELM14  | P01<br>P01<br>P01<br>P01   |          |   |
| ACPHE-A1   | 5<br>6<br>6   |      | 9<br>16<br>11<br>11  | 3<br>1<br>4                                      | 14<br>1<br>1A<br>1B  |     |    | Y<br>L<br>K   |           | SECGNOARY 1<br>FUSE<br>Distributor<br>Distributor  | F01  |          | 1-820-523-C0<br>53-03-0106<br>52-01-0101<br>52-01-0101  |
| ACPWE-A2   | 6   |      | 9  | 3  | 10   | -   |    | Y<br>K  |           | SECENDARY 1<br>DISTRIBUTOR   |  |          | 1.820.523.00<br>57.01.01C1  |
| ACPWE-A3   | 6   |      | 5<br>11  | 3  | 12<br>10   | _   |    | Y<br>K  |           | SECCNDARY L<br>DISTRIBUTOR   |  |          | T. #20.523.00<br>52.01.0101   |
| ACPWE-A4   | 1 1 1 1   |      | 9<br>10<br>11  | 3<br>2<br>4<br>4                                 | 11   | -   |    | Y<br>L<br>K   |           | SECGNDARY 1<br>FUSE<br>DISTRIBUTOR<br>DISTRIBUTOR  | F0?  |          | 1-820-573-00<br>53-03-0106<br>57-01-0101<br>52-01-0101  |
| ACPWE-A5   | 1 1   |      | ,<br>11  | 3  | 1 C<br>5 O   | -   |    | Y<br>K  |           | SECGNDARY 1<br>DISTRIBUTOR   |  |          | 1.87C.573.C0<br>52.01.0101  |
| ACPME-A6   | 7   |      | 9  | 3  | 5<br>1   | -   |    | ĭ   |           | SECCNDARY 1<br>FUSE  | F03  |          | 1.870.523.00<br>53.03.0106  |
|  |   |      |  |  |  |     |    |   |           |  |  |          |   |
| SIGNAL NAME  | *******   | 690. | ******   | UDER   | A E  | 20  | T/ | PE DECK   | E L       | *********************  | 05/14 = 05/14 = 05/14 = 05/14 = 05/14 = 05/123 = 05/123 = 05/14 = 05/1 | ******** | P A G F 66 •  |
| **********   | 1.820.<br>COLOR                                       | 690. | ASY GRP  | UDER   | PNT  | 20  | T/ | TYPE  | *******   | B3/  | 02/23 -  | 00       | FLEMFNT NR.   |
| SIGNAL VAME  | 1.820.  | 690. | ASY GRP  | ELM  | PNT  | 20  | T/ | TYPE  | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR CONNECTOR TO GRP32. ELMO1   | 07/23  | 00       | FLEMENT NR.   |
| SIGNAL VAME  | 1.820.<br>COLOR<br>5<br>5<br>5<br>5<br>5<br>5         | 690. | ASY GRP  11 11 11 11 11 11 12 32                                     | **** UDER ****  ELM 4 1 4 4 4 5 1                | PNT 15 2 3A 3C 30 4B 4C 12 12 16   | 20  | T/ | TYPE  | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECONNECTOR TO GRP32. ELMOI INPUT FROM GRP12. ELMO5   | 07/23 -<br>************************************  | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101  |
| SIGNAL NAME<br>ACPME-B1  | 1.820.<br>COLOR<br>5<br>5<br>5<br>5<br>5<br>5<br>5    | 690. | ASY GRP 9 11 11 11 11 11 12 32                                       | **** UDER ****  ELM 4 4 4 4 4 5 1                | PNT 15 2 3A 3C 3D 48 4C 12 12 16 3B 17   | 20  | T/ | TYPE  | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECCNDARY 2 DISTRIBUTOR SECCNDARY 2   | 07/23  | 00       | FLEMFNT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101  |
| SIGNAL VAME ACPHE-81   | 1.820.<br>COLOR<br>5<br>5<br>5<br>5<br>5<br>5         | 690. | ASY GRP  9 11 11 11 11 12 32 9 11                                    | #### ELM 4 1 4 4 4 4 5 1 4 4 4 4 4 4 4 4 4 4 4 4 | *****  PNY  15  2  3A  3C  3D  48  4C  12  16  3B  17  4D  18  2  6C   | 20  | T/ | Y L K K K K K K M M F Y K K K K K M M F Y K K K K K M M F Y K K K K K M M K K K K K M M M M M M M | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECCNDARY 2 DISTRIBUTOR SECCNDARY 2 OISTRIBUTOR SECCNDARY 2 RECTIFIER DISTRIBUTOR   | 07/23  | 00       | FLEMFNT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.82C.524.00 70.01.0231 52.01.0101  |
| SIGNAL NAME ACPWE-B1  ACPWE-B2  ACPWE-B3   | 1.820.<br>COLOR<br>5<br>5<br>5<br>5<br>5<br>5         | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | **** ELM 4 4 4 4 4 5 1 4 4 4 4 4 4 4 4 4 4 4 4 4 | PNT 15 2 3A 3C 3D 4B 4C 12 16 3B 17 40 18 2 6C 6D 19   | 20  | T/ | TYPE  Y L K K K K K K K K K K K K K K K K K   | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 RECTIFIER DISTRIBUTOR   | DZ01   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.0C 52.01.0161 1.820.574.00 52.01.0101  |
| SIGNAL NAME ACPWE-B1  ACPWE-B2  ACPWE-B3  ACPWE-B4   | 1.820.<br>COLOR<br>5<br>5<br>5<br>5<br>5<br>5         | 690. | ASY GRP  9 11 11 11 11 12 32 9 11 11 11 11 11 11 11 11 11 11 11 11 1 | **** BL 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4      | **** PNT  15 2 3A 3C 30C 48 4C 12 16 3B 17 4D 18 2 6C 6C   | 20  | T/ | TYPE  Y L K K K K K K K K K K K K K K K K K   | *******   | * 83/ DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR   | DZ01   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00  |
| SIGNAL NAME ACPHE-B1  ACPHE-B2  ACPHE-B3  ACPHE-B4   | 1.820.  | 690. | ASY GRP  9 11 11 11 11 11 12 32 9 11 5 11 11 11 11 11 9 11 11 9      | ### ELM 4 1 4 4 4 4 4 5 1 4 4 4 4 4 4 4 4 4 4 4  | PNT 15 2 3A 3C 2 3C 12 12 12 16 38 17 4D 18 2 6C 6D 19 6A 2C   | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  K  K  K  K  K  K  | *******   | DESCRIPTION OF ELEMENT SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECONCECTOR TO GRP32, ELMO1 INPUT FROM GRP12, ELMO5 SECCNOARY 2 DISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECCNOARY 2 RECTIFIER DISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR   | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00  |
| SIGNAL NAME ACPME-81  ACPME-82  ACPME-83  ACPME-84  ACPME-86   | 1.820.<br>COLOR 5 5 5 5 5 5 5 5 6 4 4 4 4 0 0 0       | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | # EL M 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4       | PNT 15 2 3A 3C 3D 48 4C 12 16 38 17 4D 18 2 6C 0 19 6A 2C 2 15   | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  Y  K  Y  K  Y  L  X  Y  | *******   | * 83/  DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECCNOCETO TO GRP32. ELMOI INPUT FROM GRP12. ELMO5  SECCNOARY 2 DISTRIBUTOR SECCNOARY 2 OISTRIBUTOR  SECONDARY 2 RECTIFIER DISTRIBUTOR  SECONDARY 2 RECTIFIER SECONDARY 2 RECTIFIER  SECONDARY 2 RECTIFIER  SECONDARY 2 RECTIFIER   | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00   |
| ACPHE-B3 ACPHE-B4 ACPHE-B6 ACPHE-B6  | 1.820 COLOR 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5     | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | ######################################           | PNT 15 2 3A 3C 3D 48 4C 12 12 12 16 6C 6D 19 6A 2C 2 2 15 14 16  | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  K  K  K  K  Y  L  Y  Y  Y   | *******   | DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER 01STRIBUTOR 01STRIBU | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.524.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00 70.01.0231  |
| ACPHE-82 ACPHE-83 ACPHE-84 ACPHE-86 ACPHE-86 ACPHE-C1 ACPHE-C2                                       | 1.820.000.000.000.000.000.000.000.000.000             | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | ######################################           | PNT 15 2 3A 3C 3C 3C 12 12 12 16 3B 17 40 18 2 6C 2 15 14 16 13 17   | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  K  K  K  Y  K  Y  L  Y  Y  Y  Y  Y                                  | *******   | DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER 01STRIBUTOR 01STRIBU | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00   |
| SIGNAL NAME ACPHE-B1  ACPHE-B2  ACPHE-B3  ACPHE-B4  ACPHE-B6  ACPHE-B6  ACPHE-C1  ACPHE-C2  ACPHE-C3 | 1.820.  | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | ######################################           | PNT 15 2 3A 3C 3D 4B 4C 12 12 16 3B 17 4D 18 2 6C 6D 19 6A 11 17 12 18   | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  K  Y  K  Y  L  Y  Y  Y  Y  Y  Y  Y  Y                               | *******   | DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OISTRIBUTOR OISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECCNOARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 2 RECTIFIER SECONDARY 2  | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.523.00 1.820.524.00 1.820.523.00 1.820.524.00   |
| ACPHE-B3 ACPHE-B4  ACPHE-B5 ACPHE-B6 ACPHE-C1 ACPHE-C2 ACPHE-C3 ACPHE-C4                             | 1.820.<br>COLOR 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | ######################################           | PNT 15 2 3 3C 3D 48 4C 12 12 16 3B 17 4D 18 2 6 C 6D 19 6A 2C 2 15 14 16 13 17 17 17 17 17 17 17 17 17 17 17 17 17 | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  Y  L  Y  Y  Y  Y  Y  Y  Y  Y  | *******   | DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER 01STRIBUTOR 01STRIBU | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.524.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00  |
| ACPHE-B2 ACPHE-B3 ACPHE-B4 ACPHE-B6 ACPHE-B6 ACPHE-C2 ACPHE-C3 ACPHE-C3                              | 1.820 COLOR 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5     | 690. | ASY GRP  9 11 11 11 11 11 11 11 11 11 11 11 11                       | ######################################           | PNT 15 2 3A 48 4C 12 12 16 6D 19 6A 15 14 11 17 12 18 11 17 12 20  | 20  | T/ | TYPE  Y  L  K  K  K  K  K  K  K  Y  L  Y  Y  Y  Y  Y  Y  Y  Y  Y                                  | *******   | DESCRIPTION OF ELEMENT  SECONDARY 2 RECTIFIER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECCNDARY 2 DISTRIBUTOR SECCNDARY 2 DISTRIBUTOR SECCNDARY 2 DISTRIBUTOR SECONDARY 2 RECTIFIER DISTRIBUTOR SECONDARY 2 DISTRIBUTOR SECONDARY 1 SECONDARY 1 SECONDARY 2 SECCNDARY 1 SECONDARY 1 SECONDARY 2 SECCNDARY 1 SECONDARY 1 SECONDARY 1 SECONDARY 2 SECONDARY 1 SECONDARY 1 SECONDARY 1 SECONDARY 2  | DZ01  P01 J01  P02  DZ02   | 00       | FLEMENT NR.  1.820.574.C0 70.01.C231 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 52.01.0101 1.820.524.00 52.01.0101 1.820.524.00 70.01.0231 52.01.0101 1.820.524.00 70.01.0231 1.820.524.00 |

| SIGNAL NAME  | COLOR  | MI | ASY GRP  | ELM P   | NI S   | LV | TYPE        | DESCRIPTION OF ELEMENT   | REMARK | FLEMENT NR.  |
|--|--------|----|--|---|--|----|-------------|--|--------|--|
| ACPWE-06   | 8      |    | 10   | 3<br>3  |  |    | i i         | FUSE F03 RECTIFIER D203  |        | 53.03.0106<br>70.01.0231   |
| ACPHM-A1   | 1      |    | 8<br>8<br>31   | 3 1<br>5<br>2   | i  | -  | Y<br>M<br>F | SECONDARY 1 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPO8, ELMO5 JOI   |        | 1.820.523.00   |
| AC PWM—A2  | 2 2    |    | 8<br>8<br>31   | 3 1<br>5<br>2   |  | _  | Y<br>M<br>F | SECCNDARY 1 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPOB. ELMOS JOI   |        | 1.820.523.00   |
| AC PWM-A3  | 3      | _  | 8  | 3 1<br>5<br>2   | 3  |    | Y<br>M<br>F | SECONDARY 1<br>CONNECTOR TO SPOOLING MOTOR SUPPLY<br>FROM GRPO8, ELMOS JOI   |        | 1.820.523.00   |
| ACPWM-A4   | 4      |    |  |   | 1<br>4<br>5  |    | Y<br>M<br>F | SECONDARY 1 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPO8. ELMO5 JOI   |        | 1.820.523.00   |
| ACPWM-A5   | 5      |    |  |   | 0<br>5<br>3  |    | Y<br>M<br>F | SECCNOARY 1 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPO8, ELMO5 JO1   |        | 1.820.523.00   |
| ACPWM-A6   | 6      |    | 8<br>8<br>31   | 5   | 9<br>6<br>6  |    | Y<br>M<br>F | SECCNOARY I CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPO8. ELMO5 JO1   |        | 1.820.523.00   |
| ACPWM-81   | 9      | _  | 8<br>8<br>31   | 4 1<br>5<br>2   | 7  |    | Y<br>F<br>M | SECCNDARY 2 CONNECTER TO SPOOLING MOTOR SUPPLY FROM GRPO8. ELMO5 JOL   |        | 1.876.524.00   |
| ACPWM-82   | 9      |    | 8<br>8<br>31   | 4 1<br>5<br>2   | 8  |    | Y<br>F<br>M | SECCNDARY 2 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPO8, ELMO5 JOL   |        | 1.870.574.00   |
| ACPWM-83   | 9<br>9 |    | 8<br>8<br>31   |   | 7  |    | Y<br>F<br>M | SECCNDARY 2 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRPOB. ELMO5 JOI   |        | 1.820.524.00   |
| AC PWM-84  | 9      | ш  | 8  | 4 1<br>5 1<br>2 1   | 0  |    | Y<br>F<br>N | SECONDARY 2 CONNECTOR TO SPOOLING MOTOR SUPPLY FROM GRP08. ELMO5 JO1   |        | 1.820.524.00   |
| ACPWM-85   | 9      |    | 8  | 4 1<br>5 1<br>2 1   | 1  |    | Y<br>F      | SECCNOARY 2<br>CONNECTER TO SPOOLING MOTOR SUPPLY<br>FROM GROOB. ELMOS JOI   |        | 1.820.574.00   |
| ACPWM-86   | 9      |    | 8  | 4 2<br>5 1<br>2 1   | 0 2  |    | Y<br>F      | SECCNDARY 2<br>CONNECTOR TO SPOOLING MOTOR SUPPLY<br>FROM GRP08. ELMOS JO1   |        | 1.820.524.00   |
| ACPWM-C1   | о<br>С |    | 8  | 3 1<br>4 L  | 5  |    | Y<br>Y      | SECCNDARY 1<br>SECCNDARY 2   |        | 1.82C.523.00<br>1.82O.524.00   |
| ACPHM-C2   | c<br>c |    |  | 3 1   |  |    | Y           | SECONDARY 1<br>SECONDARY 2   |        | 1.820.523.00   |
| SIGNAL NAME  |        |    | ASY CRP  |   |  |    |             | DESCRIPTION OF ELEMENT   | RFMARK | FLFMFNI  |
| ACPHM-C3   | 0      |    |  | 3 1   |  |    | ٧           |  |        |  |
| ACPWM-C4   | 0      |    |  | 3 1   |  |    | Ÿ           | SECONDARY 1<br>SECONDARY 2   |        | 1.820.523.00   |
| ACPWM-C5   | 0      |    | 8  | 4 1   |  |    | <del></del> |  |        |  |
| AC PWN-C6  |        |    |  |   | 1<br>9   |    | ¥<br>       | SECONDARY 2<br>SECONDARY 1   |        | 1.820.524.00   |
|  | c<br>0 |    | 8<br>8<br>8  | 3 1<br>4 1  | 1<br>9<br>0<br>C   |    | Y           | SECONDARY 2  SECONDARY 1 SECONDARY 2  SECONDARY 1  |        | 1.82C.573.CC<br>1.82C.573.CC   |
| AFCSH-01   | -      |    | 8<br>8<br>8<br>8<br>8  | 3 1<br>4 1<br>3 2<br>4<br>42 1<br>43 1  | 1<br>9<br>0<br><br>0<br>9  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 1 J09 RECORD APPLIFIER, CH 1 J10  |        | 1.82C.523.CC 1.82C.573.CC 1.82C.573.CC 1.82C.573.CC 1.82C.573.CC   |
| AFCSW-01<br>AFCSW-02   | -      |    | 8<br>8<br>8<br>21<br>21<br>21  | 4 1<br>3 1<br>4 1<br>3 2<br>4<br>42 1<br>43 1<br>47 1<br>48 1   | 1<br>9<br>0<br>  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 J09 RECORD APPLIFIER, CH 1 J10  HF-DRIVER, CH 2 J14 RECORD APPLIFIER, CH 2 J15  |        | 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81  |
|  | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>21<br>20<br>20<br>20   | 4 1<br>3 1<br>4 1<br>3 2<br>4 2<br>4 3 1<br>47 1<br>48 1  | 1<br>9<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 RECORD APPLIFIER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER PO3 CAPSTAN INTERFACE J03   |        | 1.820.524.00 1.820.573.00 1.820.574.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81  |
| AFCSW-02   | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>20<br>20<br>20<br>39   | 4 1<br>3 1<br>4 1<br>3 2<br>4<br>42 1<br>43 1<br>47 1<br>48 1<br>3 42<br>42 1<br>40 2   | 1<br>9<br>0<br>0<br>   |    | Y<br>Y      | SECONDARY ?  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  FF-DRIVER, CH 2 J14 RECGRO APPLIFIER, CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER PO3 CAPSTAN INTERFACE J03 FROM GRP20, ELMO3 PO1  SPOOLING MOTOR ORIVER J01   |        | 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81  |
| AFCSW-02   | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>20<br>20<br>39<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 4 1<br>3 1<br>4 1<br>3 2<br>4 2 1<br>4 3 1<br>4 7 1<br>4 8 1<br>4 9 2<br>4 1<br>4 0 2<br>4 7 1<br>4 0 2   | 1<br>9<br>0<br>0<br>7<br>0<br>5<br>5<br>7<br>3<br>3<br>8<br>7                                    |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 RECORD AMPLIFIER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER PO3 CAPSTAN INTERFACE J03 FROM GRP20, ELMO3 FROM GRP20, ELMO3 SPOOLING MOTOR DRIVER J08 SPOOLING MOTOR DRIVER J08  |        | 1.820.524.00 1.820.573.00 1.820.574.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81 1.820.712.81   |
| AFCSW-02 Ah-CSPDC AN-1CL   | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>39<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 4 1<br>3 1<br>4 1<br>3 2<br>4 2<br>4 3 1<br>4 7 1<br>4 8 1<br>3 4 2<br>4 2<br>1 1<br>4 0 2<br>4 7 7 1<br>4 0 3 2<br>1 4 0 4 0   | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  FF-DRIVER, CH 1 RECORD APPLIFIER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 J15  CAPSTAN INTERFACE J03 FROM GRP2O, ELMO3  SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVE AMPLIFIER J03 SPOOLING MOTOR DRIVER J01  |        | 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81 1.820.712.81 1.820.727.00 1.820.755.00 1.820.755.00 1.820.755.00 1.820.755.00 1.820.755.00 1.820.755.00   |
| AFCSW-02  AN-CSPDC  AN-1CL  AN-1CLD                                  | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>22<br>20<br>20<br>20<br>39<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 4 1 3 1 4 1 1 3 2 4 4 2 1 1 3 4 4 3 1 1 4 4 3 1 1 4 4 4 3 1 1 1 4 4 0 2 4 4 7 1 1 1 4 4 0 4 0 4 4 0 4 0 4 0 4 0 4 0 4   | 1 0  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  FF-DRIVER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER POS CAPSTAN INTERFACE JOS FROM GRP20, ELMOS POI  SPOOLING MOTOR DRIVER JOS SPOOLING MOTOR DRIVER JOS SPOOLING MOTOR DRIVER JOS SPOOLING MOTOR DRIVER JOI SPOOLING MOTOR DRIVER POS SPOOLING MOTOR DRIVER POS SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER POS SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER POS SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER JOIL SPOOLING MOTOR DRIVER POS SPOOLING MOTOR DRIVER JOIL SPOOLING MOT |        | 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81 1.820.712.81 1.820.712.81 1.820.727.00 1.820.755.00 1.820.755.00 1.820.755.00   |
| AFCSW-02  AN-CSPDC  AN-ICL  AN-ICLD  AN-ICR                          | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>20<br>20<br>20<br>20<br>20<br>39<br>20<br>20<br>20<br>33<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20                                     | 4 1 3 1 4 1 1 3 2 4 4 2 1 4 4 3 1 1 4 4 1 1 1 4 4 2 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 4 4 0 4 4 7 1 1 1 4 4 0 4 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  FF-DRIVFR. CH 1 RECORD APPLIFIER. CH 1 J10  HF-DRIVFR. CH 2 RECORD APPLIFIER. CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER PO3 CAPSTAN INTERFACE J03 CAPSTAN INTERFACE J03 FROM GRP20. ELMO3  SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 FROM GRP20. ELMO1  SPOOLING MOTOR DRIVER J01 FROM GRP20. ELMO1  SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 FROM GRP20. ELMO2 P01 SPOOLING MOTOR DRIVER J01   |        | 1.820.759.00 1.820.759.00 1.820.523.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81 1.820.712.81 1.820.763.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00   |
| AFCSW-02  AN-CSPDC  AN-ICL  AN-ICLD  AN-ICR                          | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>20<br>20<br>20<br>39<br>20<br>20<br>20<br>33<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 4 1 3 1 4 1 1 3 4 2 4 2 1 4 3 1 1 4 4 0 1 1 4 7 1 1 4 0 1 4 7 1 1 4 0 1 4 7 1 1 4 0 | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  HF-DRIVER, CH 1 RECORD APPLIFIER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 J15  CAPSTAN MOTOR DRIVE AMPLIFIER P03 CAPSTAN INTERFACE J03 FROM GRP20, ELMO3  SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 TAPE DECK SERIAL INTERFACE J08 SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J06 SPOOLING MOTOR DRIVER J06 SPOOLING MOTOR DRIVER J06 SPOOLING MOTOR DRIVER J06 SPOOLING MOTOR DRIVER J01  |        | 1.820.753.CC 1.820.753.CC 1.820.524.CC 1.820.524.CC 1.820.524.CC 1.820.524.CC 1.820.524.CC 1.820.732.CC 1.820.732.CC 1.820.732.CC 1.820.733.CC 1.820.753.CC   |
| AFCSW-02  AN-CSPDC  AN-ICL  AN-ICLD  AN-ICR  AN-ICRD                 | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>20<br>20<br>20<br>39<br>20<br>20<br>20<br>33<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 4 1 3 1 4 1 1 3 2 4 4 2 1 4 3 1 1 4 4 8 1 1 3 4 2 4 4 2 1 1 4 7 1 1 4 4 0 4 7 1 1 4 0 4 0 4 7 1 1 4 0 4 0 4 7 1 1 4 0 1 1 4 0 1 1 4 0 1 1 1 1 1 1 1 1   | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  HF-DRIVER, CH 1 RECORD AMPLIFIER, CH 1 J10  HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2  CAPSTAN INTERFACE J03 FROM GRP20, ELMO3  SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR DRIVER J01 SPOOLING MOTOR CONTROLLER J06 SPOOLING MOTOR CONTROLLER J06 SPOOLING MOTOR CONTROLLER J07 SPOOLING MOTOR CONTROLLER J06 SPOOLING MOTOR CONTROLLER J07 SPOOLING MOTOR CONTROLLER J08 SPOOLING MOTOR CONTROLLER J09 SPOOLING MOTOR CONTROLLER J09 SPOOLING MOTOR CONTROLLER J00 SPOOLI |        | 1.820.524.00 1.820.523.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.712.81 1.820.712.81 1.820.712.81 1.820.727.00 1.820.755.00 1.820.755.00 1.820.755.00 1.820.755.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00 1.820.759.00   |
| AFCSW-02  AN-CSPDC  AN-ICL  AN-ICLD  AN-ICR  AN-ICRD  AN-ICRD        | -      |    | 8<br>8<br>8<br>8<br>21<br>21<br>21<br>21<br>20<br>20<br>39<br>20<br>20<br>33<br>20<br>20<br>20<br>33<br>20<br>20<br>20<br>20<br>30<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20 | 4 1 3 1 4 1 1 3 2 4 4 2 1 1 4 4 1 1 3 4 2 4 2 1 1 4 4 7 1 1 4 4 0 4 7 1 1 4 4 0 4 7 1 1 4 4 0 4 7 1 1 1 4 4 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  FF-DRIVER, CH 1 SECONDARY 2  FF-DRIVER, CH 2  SECONDARY 2  FF-DRIVER, CH 2  FF-DRIVER, CH 2  SECONDARY 2  FF-DRIVER, CH 2  SECONDARY 2  SECONDARY 2  FF-DRIVER, CH 2  SECONDARY 2  SECONDARY 2  SECONDARY 2  FF-DRIVER, CH 1  SECONDARY 2  |        | 1.82C.759.CC 1.82C.752.CC 1.82C.523.CC 1.82C.523.CC 1.82C.523.CC 1.82C.523.CC 1.82C.712.81 1.82C.712.81 1.82C.712.81 1.82C.727.0C 1.82C.727.0C 1.82C.727.0C 1.82C.759.CC |
| AFCSW-02  Ah-CSPDC  AN-ICL  AN-ICLD  AN-ICR  AN-ICRD  AN-IRR  AN-IRR | -      |    | 8 8 8 8 8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9  | 4 1 3 1 4 1 1 3 2 4 4 1 4 3 1 1 4 4 7 1 1 4 4 7 1 1 1 4 4 0 2 1 4 4 0 4 5 4 0 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 1  |    | Y<br>Y      | SECONDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  FF-DRIVER, CH 2 SECCNDARY 2  FF-DRIVER, CH 2 SECCNDARY 2  FF-DRIVER, CH 2 SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  FF-DRIVER, CH 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDARY 2  SECCNDARY 2  SECCNDARY 1 SECCNDARY 2  SECCNDA |        | 1.820.753.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.524.00 1.820.732.00 1.820.732.00 1.820.732.00 1.820.755.00   |

| • WILLI S   | ********  |  | L W I R E   | 00000000000000000000000000000000000000   | 2/23 -  | 00        | •  |
|---|-----------|--|---|--|---|-----------|--|
| SIGNAL NAME   | COLOR M   | ASY GRP ELM PNT  | S LV TYPE   | DESCRIPTION OF ELEMENT   |   | REMARK    | ELEMENT NR.                                  |
| AN-RES4   |           | 20 47 10   |   | TAPE DECK SERIAL INTERFACE   | 30L   |           | 1.820.763.00                                 |
| AN-TTL  |           | 20 12 9  |   | TAPE TENSION SENSOR, LEFT  | P12   |           |  |
|   |           | 20 45 1<br>20 45 3   |   | SPOOLING MOTOR CONTROLLER<br>SPOOLING MOTOR CONTROLLER   | 709   |           | 1.820.760.00<br>1.820.760.00                 |
|   |           | 20 47 1<br>20 47 5   |   | TAPE DECK SERIAL INTERFACE   | 709<br>709  |           | 1.820.763.00                                 |
|   |           | 42 1 9   |   | FROM GRP20+ ELM12  | P01   |           |  |
| AM-TTR  |           | 2C 13 9<br>2C 45 2<br>2O 45 4  |   | TAPE TENSION SENSOR, RIGHT<br>SPOOLING MOTOR CONTROLLER<br>SPOOLING MOTOR CONTROLLER   | J06<br>J06  |           | 1.820.760.00                                 |
|   |           | 2C 47 2<br>2C 47 6   |   | TAPE DECK SERIAL INTERFACE<br>TAPE DECK SERIAL INTERFACE   | 708   |           | 1.820.760.00<br>1.820.763.00<br>1.820.763.00 |
|   |           | 43 1 9   |   | FROM GRP20. ELM13  | POI   |           |  |
| ANN-SHI   |           | 48 1 26<br>48 2 8<br>49 1 8<br>50 3 26   |   | FROM GRP50. FLM03 CONNECTOR EDIT ASSEMBLY FROM GRP48. ELM02 CONNECTOR PUSHBUTTON ASSEMBLY  | P02   |           |  |
| ANM-SH2   |           | 48 1 25  |   | FROM GRP50. ELMO3  |   |           |  |
|   |           | 48 2 1C<br>49 1 10   |   | CONNECTOR EDIT ASSEMBLY<br>FROM GRP48, ELMO2   |   |           |  |
| ANN-SH3   |           | 50 3 25  |   | CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50, ELMO3  | P07   |           |  |
| ARR-3H3   |           | 48 2 9   |   | CONNECTOR EDIT ASSEMBLY<br>FROM GRP48, ELMO2   |   |           |  |
|   |           | 50 3 24  |   | CONNECTOR PUSHBUTTON ASSEMBLY  | P02   |           |  |
| BIASA-01  |           | 21 42 5<br>21 43 6   |   | HF-DRIVER. CH L<br>RECORD AMPLIFIER. CH 1  | J09<br>J10  |           | 1.820.713.00                                 |
| BIASA-02  |           | 21 47 5  |   | FF-DRIVER. CH 2  | J14   |           | 1.820.713.00                                 |
|   |           | 21 48 6  |   | RECORD AMPLIFIER, CH 2   | J15   |           | 1.820.712.81                                 |
| P1458-01  |           | 21 42 6<br>21 43 7   |   | +F-ORIVER, CH 1<br>RECORD AMPLIFIER. CH 1  | 710<br>704  |           | 1.820.713.00                                 |
| BIASB-02  |           | 21 47 6  |   | HF-ORIVER. CH 2  | J14   |           | 1.826.713.00                                 |
| EIASC-01  |           | 21 48 7  |   | RECORD APPLIFIER. CH 2  HF-DRIVER, CH 1  | J15<br>   |           | 1.820.712.81<br>1.820.713.CD                 |
|   |           | 21 43 8  |   | RECORD AMPLIFIER. CH 1   | J10   |           | 1.820.712-81                                 |
| EIASC-02  |           | 21 47 7<br>21 48 8   |   | FF-DRIVER. CH 2 RECORD AMPLIFIER. CH 2   | J14<br>J15  |           | 1.820.713.00<br>1.820.712.81                 |
| B#-0-2  |           | 48 1 6<br>48 3 8<br>50 3 6   |   | FROM GRP50, ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY   | P02   |           |  |
| BM-0.3  |           | 48 1 7<br>48 3 7<br>50 3 7   |   | FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY   | P02   |           |  |
| *******   |           |  |   |  |   |           |  |
|   |           |  |   | ************   |   |           | *************                                |
| • MILLI 21  | UDER AG   | * S I G N A  |   |  | 5/14  | · 11:48 • | P A G E 70 •                                 |
| • MILLI ST  | ********  | * S I G N A  | L W I R E   | L I S T + 86/0   | 5/14<br>2/23 -  | 11:48 •   | ***************************************      |
| ***********   | 1.820.090 | S I G N A  | L W I R E   | L I S T * 86/0   | 5/14<br>2/23 -  | 11:48 •   | ***************************************      |
| SIGNAL VAME   | 1.820.090 | * S I G N A  | L W I R E   | L ! S T  | 5/14<br>2/23 -  | 11:48 •   |  |
| SIGNAL NAME   | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELM03 wire Fifto   | 5/14<br>••••••<br>2/23 –<br>•••••   | 11:48 •   |  |
| SIGNAL VAME   | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 FROM GRP50. FLMO3 FROM GRP50. FLMO3  | P02   | 11:48 •   |  |
| SIGNAL NAME BM-0.4 BM-0.5   | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY   | P02   | 11:48 •   |  |
| SIGNAL NAME BM-0.4 BM-0.5   | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD   | P02   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY   | P02 P02 P02 P02   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  | 1.820.090 | * S I G N A ***********************************  | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD   | P02 P02 P02 P02 P02 P02 P03   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  | 1.820.090 | S I G N A  .00 STUDER A E  .00 | L W I R E   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL  | P02 P02 P02 P02 P02 P02 P03   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  EM-0.5  EM-0.7  BR-FAORY  | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFELD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL   | P02 P02 P02 P02 J03 P04 J07 J03 P04 J03   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORM   | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50, ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50, ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50, ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50, ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50, ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL   | P02 P02 P02 P02 J03 P04 J07 J03 P04 J03 P04   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFELD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL   | P02 P02 P02 P02 J03 P04 J07 J03 P04 J03   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORM   | 1.820.090 | S I G N A  .00 STUDER A E  .00 | L W I R E  2C • TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLO CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER  | P02 P02 P02 P02 P03 P04 J03   | 11:48 •   |  |
| BM-0.4  BM-0.4  BM-0.5  BM-0.5  BM-0.6  BM-0.6  BM-0.6  BM-0.6  BM-0.6                                  | 1.820.090 | S I G N A  .00 STUDER A E  .00 | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER   | P02 P02 P02 P02 P03 P04 J03 P04   | 11:48 •   |  |
| BM-0.4  BM-0.4  BM-0.5  BM-0.5  BM-0.6  BM-0.6  BM-0.6  BM-0.6  BM-0.6                                  | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C • TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50, ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO  | P02 P02 P02 P02 J03 P04 J07 J03 P04 J03   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FADRY  BR-FORM  BR-LOCST  BR-PLAY                        | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C • TAPE DECK & AUDIC  S LV TYPE  B  B  B  B  B  B  B  B  B  B  B  B  B | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER   | P02 P02 P02 P02 P03 P04 J03 P04 J03 P04 J03 P04 J03 P04 J03 P04 P09   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORM  BR-PLAY  BR-REC                          | 1.820.090 | S I G N A  .00 STUDER A E .00 STUDER A E .00 STUDER A E .00 STUDER A E .00 B B .00 | L W I R E  2C • TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLO CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CO | PO2 PO2 PO2 PO3 PO4 JO3 PO4   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FADRY  BR-FORM  BR-LOCST  BR-PLAY                        | 1.820.090 | S I G N A  .000 • STUDER A E  .000 • STUDER A E  .000 • STUDER A E  .001 • STUDER A E  .002 • STUDER A E  .003 • B  .003 • B  .003 • B  .004 • B 1   | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONNE | P02 P02 P02 P02 P02 P03 P04 J03 P04   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORM  BR-PLAY  BR-REC                          | 1.820.090 | * S I G N A ***********************************  | S LV TYPE   | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER  | P02 P02 P02 P02 P02 P03 P04 J03 P04 J03 P04 J03 P04 J03 P04 J03 P04 J02 J03 P04   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORM  BR-PLAY  BR-REC                          | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE | P02 P02 P02 P02 P02 P03 P04 J03 P04 J07 J07   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORW  BR-FORW  BR-FORW  BR-REC  BR-REC | 1.820.090 | S I G N A  | L W I R E  2C • TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCH | P02 P02 P02 P02 P02 P03 P04 J03 P04   | 11:48 •   |  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORW  BR-FORW  BR-FORW  BR-REC  BR-REC | 1.820.090 | S I G N A  .000 • STUDER A E  .000 • STUDER A E  .000 • STUDER A E  .001 • STUDER A E  .002 • STUDER A E  .003 • STUDER A E  .004 • STUDER A E  .005 • STUDER A E  .005 • STUDER A E  .005 • STUDER A E  .006 • STUDER A E  .007 • STUDER A E  .008 • STUDER A E  .0 | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. FLMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRP50. ELMO3 WIRE FIFLD CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHR | P02 P02 P02 P02 P02 P03 P04 J03 P04 P04 J03 P04 P04 P04 P05 P08 | 11:48 •   | ELEMENT MR.                                  |
| SIGNAL NAME BM-0.4  BM-0.5  EM-0.5  EM-0.6  EM-0.7  BR-FAORY  BR-FORW  BR-FORW  BR-FORW  BR-REC  BR-REC | 1.820.090 | * S I G N A ***********************************  | L W I R E  2C * TAPE DECK & AUDIC  S LV TYPE  | DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 WIRE FIELD CONNECTOR PUSHBUTTON ASSEMBLY  CONNECTOR PUSHBUTTON ASSEMBLY  CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZ | P02 P02 P02 P02 P03 P04 J03 P04   | 11:48 •   |  |

| SIGNAL NAME  | COLOR  | HI  | ASY GRE  | ELM  | PNT   | 5   | LV                                      | TYPE       | DESCRIPTION OF ELEMENT   | 101  | REMARK                                       | ELFMENT NR.  |
|--|--------|-----|--|--|---|-----|---|------------|--|--|--|--|
| CA-ADR-R   |        |     | 2 I<br>2 I   | 40   | 27<br>27  |     |   |            | TIME CODE WRITE/READ UNIT  | J07<br>J08   |  | 1.820.721.8  |
|  |        |     | 21   | 42   | 27  |     |   |            | HF-DRIVER, CH 1  | 109  |  | 1.820.713.0  |
|  |        |     | 21   | 44   | 27  |     |   |            | RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1   | J10  |  | 1.820.712.8<br>1.82C.710.8   |
|  |        |     | 21   | 45   | 27  |     |   |            | LINE AMPLIFIER. CH 1   | J12  |  | 1.820.714.8  |
|  |        |     | 21<br>21   | 46   | 27  |     |   |            | MONG-STEREO-SWITCH<br>HF-DRIVER. CH 2  | J13  |  | 1.820.720.0  |
|  |        |     | 21   | 48   |   |     |   |            | RECORD AMPLIFIER. CH 2   | J15  |  | 1.820.712.8  |
|  |        |     | 21<br>21   | 50   | 27  |     |   |            | REPRODUCE AMPLIFIER. CH 2<br>LINE AMPLIFIER. CH 2  | J16<br>J17   |  | 1.820.714.8  |
| A-ADR-S  |        |     | 20<br>20   | 33<br>51   | 6<br>22B  |     | *************************************** |            | TO AUDIC BASIS BOARD, ELM3I<br>MASTER PERIPHERY CONTROLLER   | P23<br>J12   |  | 1.82C.728.C  |
|  |        |     | 21   | 31   | 6   |     |   |            | FROM TAPE DECK BASIS BOARD   | J06  |  |  |
|  |        |     | 21   | 4D   | 28  |     |   |            | TIME CODE WRITE/READ UNIT  | J07  |  | 1.820.721.8<br>1.82C.772.8   |
|  |        |     | 21   | 42   | 28  |     |   |            | HE-DRIVER. CH 1 RECORD AMPLIFIER. CH 1   | 704<br>710   |  | 1.820.713.0  |
|  |        |     | 21   | 44   | 28  |     |   |            | REPRODUCE AMPLIFIER, CH 1  | J11  |  | 1.82C.710.8  |
|  |        |     | 21   | 45   | 28  |     |   |            | LINE AMPLIFIER. CH 1<br>MONO-STEREO-SWITCH   | J12  |  | 1.820.714.8  |
|  |        |     | 21   | 47   | 28  |     |   |            | HF-DRIVER. CH 2  | J14  |  | 1.820.713.0  |
|  |        |     | 21   | 48   | 28  |     |   |            | RECORD AMPLIFIER. CH 2<br>REPRODUCE AMPLIFIER. CH 2  | J15  |  | 1.82C.712.8<br>1.82C.710.8   |
| A . AOO . T  |        |     | 21   | 50   | 28  | -   |   |            | LINE AMPLIFIER, CH 2   | J17  |  | 1.820.714.8  |
| A-ADR-T  |        |     | 2C<br>2C<br>21   | 33<br>51<br>31   | 23B<br>8  |     |   |            | TO AUDIC BASIS BOARC. FLM31 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD   | J12<br>J06   |  | 1.820.728.0  |
|  |        |     | 21   | 40   | 29  |     |   |            | TIME CODE WRITE/READ UNIT  | J07  |  | 1.820.771.8  |
|  |        |     | 21   | 41   | 29  |     |   |            | TIME CODE DELAY UNIT<br>HF-ORIVER. CH I  | 90C  |  | 1.820.722.8<br>1.820.713.0   |
|  |        |     | 21   | 43   | 29  |     |   |            | RECORD AMPLIFIER. CH 1   | J10  |  | 1.820.712.8  |
|  |        |     | 21   | 44   | 29  |     |   |            | REPRODUCE AMPLIFIER. CH 1<br>LINE AMPLIFIER. CH 1  | J11  |  | 1.820.710.8<br>1.820.714.8   |
|  |        |     | 21   | 46   | 29  |     |   |            | MONO-STERED-SWITCH   | J13  |  | 1.870.770.0  |
|  |        |     | 21   | 47   |   |     |   |            | HF-DRIVER. CH 2<br>RECORD AMPLIFIER. CH 2  | J14<br>J15   |  | 1.820.713.0  |
|  |        |     | 21<br>21   | 49   | 29<br>29  |     |   |            | REPRODUCE AMPLIFIER. CH 2<br>LINE AMPLIFIER. CH 2  | J16<br>J17   |  | 1.820.710.8  |
| A-ADR-U  |        | _   |  | 33   | 10  | -   |   |            | TO AUDIC BASIS BOARD. FLM31  | P23  |  |  |
|  |        |     | 20   | 51   | 248   |     |   |            | MASTER PERIPHERY CONTROLLER  | J12  |  | 1.82C.728.C  |
|  |        |     |  | 40   | 30  |     |   |            | FROM TAPE DECK BASIS BOARD<br>TIME CODE WRITE/READ UNIT  | J06  |  | 1.820.721.8  |
|  |        |     | 21   | 41   |   |     |   |            | TIME CODE DELAY UNIT   | 30E  |  | 1.820.722.8  |
|  |        |     |  | 42   |   |     |   |            | HF-DRIVER, CH 1 RECORD AMPLIFIER, CH 1   | 710  |  | 1.820.713.0  |
|  |        |     | 21   | 44   | 3C<br>30  |     |   |            | REPRODUCE AMPLIFIER, CH 1<br>LINE AMPLIFIER, CH 1  | J11  |  | 1.820.710.8  |
|  |        |     |  |  | 30  |     |   |            | MONO-STERED-SWITCH   | J13  |  | 1.820.720.0  |
|  |        |     | 21   |  |   |     |   |            |  |  |  |  |
| · · · · · · · · · · · · · · · · · · ·                                      | I.820. | 090 | 2I<br>21   | 47<br>48<br>I G  | 30<br>30  | 62C | • · ·                                   | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T PROPERTY OF PROPER | J14<br>J15   | * 11:48                                      | • PAGF 72  |
| ***********  | I.820  | 090 | 2I<br>21   | 47<br>48<br>I G  | 30<br>30  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2   | J14<br>J15   | * 11:48                                      | 1.820.712.8<br>-/  |
| SIGNAL NAME  | I.820  | 090 | 2I<br>21<br>3 S S S S S S S S S S S S S S S S S S S  | 47<br>48<br>1 G<br>1 G<br>1 UDEN   | 30<br>30<br>30<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15   | * 11:48                                      | 1.820.712.8 _/ P A G F 72 P A G F 72 FLFMFNT NR.   |
| IGNAL NAME < CONT.OF A-ADR-U   | I.820  | 090 | 2I<br>21<br>3<br>00 • S1<br>ASY GRF<br>21<br>21  | 47<br>48<br>I G<br>TUDEN<br>P ELP<br>50  | 30<br>30<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | EZC | • T                                     | APE DECK & | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  LIST  | J14<br>J15<br>5/04/14<br>3/02/23   | * 11:48                                      | 1.820.712.8<br>-/<br>P A G F 72<br>  |
| IGNAL NAME < CONT.OF   | I.820  | 090 | 2I<br>21<br>3<br>00 • S1<br>ASY GRF<br>21<br>21  | 47<br>48<br>I G<br>TUDEN<br>9 ELP<br>49<br>50  | 30<br>30<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>6/05/14<br>3/02/23<br>J16<br>J17<br>J09<br>J10   | * 11:48                                      | 1.820.712.8 _/ P A G F 72 P A G F 72 FLFMFNT NR.   |
| SIGNAL NAME  KC CONT.OF  CA-ADR-U  CA-BADO1                                | I.820  | 090 | 2I 21 21 21 21 21 21 21 21 21 21 21  | 47<br>48<br>1 G<br>1 UDEH<br>2 ELP<br>49<br>50<br>42<br>43   | 30<br>30<br>30<br>N<br>N<br>N<br>1<br>N<br>1<br>N<br>1<br>N<br>30<br>30<br>17<br>17   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>5/0*/14<br>9/07/23<br>J16<br>J17<br>J09<br>J10  | * 11:48                                      | 1.820.712.8  -/  PAGF72  FLFMFNT NR.  1.820.71C.8 1.820.714.8 1.82C.712.8  |
| • • • • • • • • • • • • • • • • • • •                                      | I.820  | 090 | 21<br>21<br>5<br>5<br>3<br>00 • 51<br>21<br>21<br>21   | 47<br>48<br>1 G<br>1 G<br>1 UDEN<br>49<br>50<br>42<br>43   | 30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>9<br>1<br>7<br>17   | EZC | • T                                     | APE DECK & | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  LIST & 8  AUDIO & 8  CESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  LINE AMPLIFIER, CH 2  HF—ORIVER, CH 1  RECORD AMPLIFIER, CH 1   | J14<br>J15<br>6/0*/14<br>3/02/23<br>J16<br>J17<br>J09<br>J10   | * 11:48                                      | 1.820.712.8  -/  PAFF72  FLEMENT NR.  1.820.710.8  1.820.714.8  1.820.712.8  |
| SIGNAL NAME CC— CONT.OF CA-ADR-U CA-BADO1 CA-BADO2                         | I.820  | 090 | 21 21 21 21 21 21 21 21 21 22 20 20  | 47<br>48<br>I G<br>FUDEN<br>50<br>42<br>43<br>47<br>48<br>32<br>51   | 30<br>36<br>N<br>N<br>1000000000000000000000000000000000  | EZC | • T                                     | APE DECK & | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  LIST & 8  AUDIO   | J14<br>J15<br>5/04/14<br>100/04/14<br>100/04/14<br>116<br>J17<br>J10<br>J10<br>J10<br>J11<br>J15<br>J12<br>J12   | * 11:48                                      | 1.820.712.8  -/  PAGF72  FLFMFNT NR.  1.820.71C.8 1.820.714.8 1.82C.712.8  |
| IGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2                          | I.820  | 090 | 21 21 21 21 21 21 21 21 21 20 20 20 21 21 21 21  | 47<br>48<br>11 G<br>12 G<br>13 G<br>14 G<br>14 G<br>14 G<br>14 G<br>14 G<br>14 G<br>14 G<br>14   | 30<br>30<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>18<br>118<br>118<br>139   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>115<br>116<br>117<br>110<br>110<br>110<br>110<br>110<br>110<br>110<br>110<br>110   | * 11:48                                      | 1.820.712.8  PAFF 72  PAFF 72  FLEMENT NR.  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  |
| GIGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>18<br>18<br>39   | EZC | • T                                     | APE DECK & | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  HF-ORIVER, CH 1  RECORD AMPLIFIER, CH 2  HF-ORIVER, CH 1  RECORD AMPLIFIER, CH 2  RECORD AMPLIFIER, CH 2  TO AUDIC BASIS BOARD, ELM30  MASTER PERIPHERY CONTROLLER  FROM TAPE DECK BASIS BOARD  TIME CODE WRITE/READ UNIT  TIME CODE OELAY UNIT   | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/1 | * 11:48                                      | 1.820.712.8  -/  P A G F 72  |
| SIGNAL NAME CC— CONT.OF CA-ADR-U CA-BADO1 CA-BADO2                         | I.820  | 090 | 21 21 21 21 21 21 22 20 20 21 21 21 22 22 20 20 20 20 20 21 21 21 21 21 22 20 20 20 20 21 21 21 21 21 21 21 20 20 20 20 20 20 20 20 20 20 20 20 20   | 47<br>48<br>1 G 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6  | 30<br>30<br>30<br>8<br>8<br>8<br>4<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>1/07/23<br>J16<br>J17<br>J19<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10  | * 11:48                                      | 1.820.712.8  PAFF 72  PAFF 72  FLEMENT NR.  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  |
| SIGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                | I.820  | 090 | 21 21 21 21 21 21 21 22 20 21 21 22 20 20 20 20 21 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>48<br>1 G<br>FUDEN<br>49<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>30<br>40<br>41<br>32<br>51<br>30<br>30<br>40<br>41   | 30<br>30<br>30<br>30<br>4 ************************************  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/16<br>100*/1 | * 11:48                                      | 1.820.712.8  -/  PAGF72  FLEMENT NR.  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8   |
| IGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                 | I.820  | 090 | 21 21 21 21 21 21 22 21 21 21 22 22 21 21  | 47<br>48<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61<br>61   | 30<br>30<br>30<br>30<br>4 PNY<br>30<br>30<br>17<br>17<br>17<br>17<br>18<br>18<br>39<br>20<br>39<br>20<br>39   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>115<br>116<br>J17<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10  | * 11:48                                      | 1.820.712.8  PAGF 72  PAGF 72  FLEMENT NR.  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  |
| IGNAL NAME   C— CONT. OF  A-ADR-U  A-BA001  A-BA002  A-CHSTC               | I.820  | 090 | 21 21 21 21 21 21 21 21 22 21 21 21 21 2   | 47<br>48<br>1 G<br>FUDEN<br>49<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>30<br>40<br>41<br>32<br>51<br>32<br>51<br>40<br>41<br>41<br>49<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40   | 30<br>30<br>30<br>30<br>30<br>4 PNT<br>30<br>30<br>17<br>17<br>17<br>17<br>17<br>18<br>118<br>18<br>39<br>39<br>20<br>128<br>20<br>39<br>39   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/1 | * 11:48                                      | 1.820.712.8  -/ PAGF72  FLFMFNT NR.  1.820.71C.8 1.820.71C.8 1.82C.712.8 1.82C.712.8 1.82C.722.8 1.82C.722.8 1.82C.722.8   |
| IGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                 | I.820  | 090 | 21 21 21 21 21 22 20 21 21 21 21 21 21 21 21 21 21 21 21 21  | 47<br>48<br>II G<br>FUDEH<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>30<br>40<br>41<br>32<br>51<br>30<br>42<br>43<br>44<br>45  | 30<br>30<br>30<br>30<br>8   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>J16<br>J17<br>J16<br>J17<br>J19<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10  | * 11:48                                      | 1.820.712.8  PAGF 72  PAGF 72  PAGF 72  PAGF 72  PAGF 72  PAGF 72  1.820.712.8  1.820.712.8  1.820.712.8  1.820.728.C  1.820.728.C  1.820.728.C  1.820.728.C  1.820.728.C  1.820.728.C   |
| GIGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                | I.820  | 090 | 21 21 21 21 21 22 20 21 21 21 21 21 21 21 21 21 21 21 21 21  | 47<br>48<br>II G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G<br>G  | 30<br>30<br>30<br>30<br>30<br>4 PNT<br>30<br>30<br>17<br>17<br>17<br>17<br>18<br>118<br>18<br>39<br>39<br>20<br>39<br>39<br>39<br>39  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>S/0*/14<br>S/0*/14<br>J16<br>J17<br>J17<br>J19<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10   | * 11:48                                      | 1.820.712.8  PAGF 72  PAGF 72  I.820.71C.8  1.820.71C.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.722.8  1.820.722.8  1.820.722.8  1.820.722.8  1.820.722.8  |
| GIGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                | I.820  | 090 | 21 21 21 21 21 22 20 21 21 21 22 21 21 | 47<br>48<br>11 G<br>12 G<br>13 G<br>14 G<br>15 G<br>16 G<br>16 G<br>17 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/14<br>100*/1 | * 11:48                                      | 1.820.712.8  PAGF72  PAGF72  1.820.710.8  1.820.710.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8   |
| A-CHSOL  | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>11 G<br>12 G<br>13 G<br>14 G<br>14 G<br>15 G<br>16 G<br>17 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18   | 30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>5/0*/14<br>***********************************   | * 11:48                                      | 1.820.712.8  PARF72  PARF72  1.820.71C.8  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8   |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 22 20 21 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21   | 47<br>48<br>49<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>30<br>40<br>40<br>41<br>45<br>43<br>44<br>45<br>45<br>45<br>50   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>20<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>24<br>148<br>24<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39 | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14<br>J15<br>J16<br>J17<br>J16<br>J17<br>J19<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10<br>J10  | * 11:48                                      | 1.820.712.8  PAGF 72  FLEMENT NR.  1.820.712.8  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.714.8  1.820.714.8  1.820.714.8   |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>11 G<br>12 G<br>13 G<br>14 G<br>14 G<br>15 G<br>16 G<br>17 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18 G<br>18   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  3/0*/14 3/02/23  3/02/23  3/02/23  3/02/23  J16 J17 J19 J10 J11 J15 J10 J11 J12 J12 J12 J12 J12 J12 J12 J12 J12   | * 11:48                                      | 1.820.712.8  PAGF 72  FLEMENT NR.  1.820.712.8  1.820.713.0  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.713.0  1.820.712.8  1.820.713.0  1.820.714.8  1.820.714.8   |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  5/0*/14  100   | * 11:48                                      | 1.820.712.8  PAGF 72  PAGF 72  1.820.710.8  1.820.710.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.714.8   |
| IGNAL NAME   CONT.OF  A-ADR-U  A-BA001  A-BA002  A-CHSTC                   | I.820  | 090 | 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21  | 47<br>48<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 30<br>30<br>8<br>8<br>8<br>8<br>9<br>10<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  5/0*/14  100*/14  100*/14  100*/14  110*/100*/14  110*/100*/100*/100*/100*/100*/100*/100  | * 11:48                                      | 1.820.712.8  PAGF72  PAGF72  1.820.71C.8  1.820.71C.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.714.8  1.820.714.8  |
| IGNAL NAME   CONT.OF  A-ADR-U  A-BA001  A-BA002  A-CHSTC                   | I.820  | 090 | 21 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21   | 47<br>48<br>48<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 30<br>30<br>30<br>30<br>8<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>18<br>118<br>118<br>1  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  | # 11:48<br>- OC<br>- OC<br>REMARK            | 1.820.712.8  PAGF 72  FLEMENT NR.  1.820.712.8  1.820.714.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.713.0  1.820.712.8  1.820.713.0  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  |
| IGNAL NAME   CONT.OF  A-ADR-U  A-BA001  A-BA002  A-CHSTC                   | I.820  | 090 | 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21  | 47<br>48<br>48<br>49<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>31<br>30<br>40<br>41<br>45<br>32<br>51<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>31<br>42<br>43<br>44<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45<br>45             | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  \$70***********************************   | # 11:48                                      | 1.820.712.8 PAGE 72 PAGE 72 PAGE 72 PAGE 72 PAGE 72 PAGE 713.0 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.713.0 1.820.712.8 1.820.713.0 1.820.712.8 1.820.713.0 1.820.712.8 1.820.713.0 1.820.712.8 1.820.712.8 1.820.712.8 1.820.713.0 1.820.714.8   |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21   | 47 48 49 50 42 43 44 45 51 31 31 31 31 31 31 31 31 31 31 31 31 31  | 30<br>30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  | # 11:48                                      | 1.820.712.8  PARF 72  PARF 72  1.820.71C.8  1.820.71C.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.714.8  1.820.714.8  1.820.714.8  |
| IGNAL NAME  C— CONT.OF A-ADR-U  A-BADO1  A-BADO2  A-CHSTC  A-CHSO2         | I.820  | 090 | 21 21 21 21 22 22 21 21 21 21 21 21 21 2   | 47 48 49 50 42 43 44 45 46 47 48 48 49 50 42 43 44 45 51 31 31 31 31 31 31 31 31 31 31 31 31 31  | 30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>31<br>17<br>17<br>17<br>17<br>18<br>118<br>118<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  | # 11:48                                      | 1.820.712.8  PAGF 72  ***********************************  |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 30<br>30<br>30<br>8<br>8<br>8<br>8<br>9<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  5/0*/14  100*/14  100*/14  100*/14  100*/14  100*/14  100*/14  100*/14  100*/14  100*/16  100   | # 11:48                                      | 1.820.712.8  PAGF 72  PAGF 72  1.820.710.8  1.820.710.8  1.820.714.8  1.92C.713.0  1.820.712.8  1.820.712.8  1.820.712.8  1.820.712.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  1.820.714.8  |
| IGNAL NAME  < CONT.OF A-ADR-U A-BAD01  A-BAD02  A-CHSTC  A-CHSO2           | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47 48 32 51 30 42 43 44 45 51 31 31 40 42 43 351 31 40 40 47 48 49 50  | 30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>17<br>17<br>17<br>17<br>18<br>118<br>18<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S I • 8  AUDIO • 8  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2  LINE AMPLIFIER, CH 2  HF-ORIVER, CH 1  HF-ORIVER, CH 2  RECORD AMPLIFIER, CH 2  TO AUDIC BASIS BOARD, ELM30  MASTER PEREPHERY CONTROLLER FROM TAPE DECK BASIS BOARD  TIME CODE WRITE/READ UNIT  TIME CODE DELAY UNIT  TO AUDIC BASIS BOARD, ELM30  MASTER PEREPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-ORIVER, CH 1  RECORD AMPLIFIER, CH 1  RECORD AMPLIFIER, CH 1  TO AUDIC BASIS BOARD, ELM30  MASTER PEREPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-ORIVER, CH 1  TO AUDIC BASIS BOARD, ELM30  MASTER PEREPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-DRIVER, CH 2  RECORD AMPLIFIER, CH 2  RECORD AMPLIFIER, CH 2  TO AUDID BASIS BOARD, ELM31  MASTER PEREPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-DRIVFR, CH 2 RECORD AMPLIFIER, CH 2  LINE AMPLIFIER, CH 1  REPRODUCE AMPLIFIER, CH 1  REPRODUCE AMPLIFIER, CH 1  REPRODUCE AMPLIFIER, CH 1  RECORD AMPLIFIER, CH 1  REPRODUCE AMPLIFIER, CH 1  MONO-SYEREGO-SNITCH HF-ORIVER, CH 2  RECORD AMPLIFIER, C | J14 J15  3/04/14 3/02/23 3/04/24 3/02/23 3/04/24 3/15  J16 J17  J19 J10 J15 J10 J11 J12 J11 J12 J12 J12 J12 J12 J12 J12  | # 11:48                                      | 1.820.712.8 PAGF 72 PAGF 73 PA |
| IGNAL NAME  < CONT.OF A-ADR-U  A-BADO1  A-BAD02  A-CHSTC  A-CHSO2  A-CHSO2 | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47 48 49 50 42 43 44 45 46 47 48 49 50 33 3  | 30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>17<br>17<br>17<br>17<br>18<br>118<br>18<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39<br>39   | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  | # 11:48                                      | 1.820.712.8 PAGE 72 PAGE 72 PAGE 72 PAGE 72 PAGE 713.0 1.820.712.8 1.820.713.0 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.713.0 1.820.713.0 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8   |
| IGNAL NAME  < CONT.OF A-ADR-U  A-BADO1  A-BAD02  A-CHSTC  A-CHSO2  A-CHSO2 | I.820  | 090 | 21 21 21 21 22 22 21 21 21 21 21 21 21 2   | 47 48 49 50 41 42 43 44 45 46 47 48 49 50 33 351 31 31 31  | 30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  LIST BECORD AMPLIFIER, CH 2  LINE AMPLIFIER, CH 2  HF-ORIVER, CH 1 RECORD AMPLIFIER, CH 2  HF-ORIVER, CH 2  RECORD AMPLIFIER, CH 2  TO AUDIC BASIS BOARD, ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD TIME CODE WRITE/READ UNIT TIME CODE CELAY UNIT  TO AUDIC BASIS BOARD, ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-ORIVER, CH 1 RECORD AMPLIFIER, CH 1 RECORD AMPLIFIER, CH 1 RECORD AMPLIFIER, CH 1 LINE AMPLIFIER, CH 1  TO AUDIC BASIS BOARD, ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-ORIVER, CH 1  TO AUDIC BASIS BOARD, ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-DRIVER, CH 2 RECORD AMPLIFIER, CH 2 RECORD AMPLIFIER, CH 2 LINE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 RECORD AMPLIFIER, CH 2 RESCORD AMPLIFIER, CH 2 RESC | J14 J15  | # 11:48                                      | 1.820.712.8 PAGF 72 PA |
| A-CHSO2  | I.820  | 090 | 21 21 21 21 22 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21  | 47 48 49 50 32 51 31 40 41 42 43 34 44 45 46 47 48 49 50 33 35 51 31 40 41 41 42 43 44 45 46 46 47 48 48 49 50 33 35 11 31 40 41 41 41 41 41 41 41 41 41 41 41 41 41   | 30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  LIST BE BEDRENT  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 2  HF-ORIVER, CH 1 RECORD AMPLIFIER, CH 1  HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  TO AUDIC BASIS BOARD, ELMSO MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD TIME CODE OELAY UNIT  TO AUDIC BASIS BOARC, ELMSO MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-ORIVER, CH 1 RECORD AMPLIFIER, CH 1 RECORD AMPLIFIER, CH 1 LINE AMPLIFIER, CH 1 LINE AMPLIFIER, CH 2 RECORD AMPLIFIER, CH 2 LINE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 LINE AMPLIFIER, CH 1 REPRODUCE AMPLIFIER, CH 2 RECORD AMPLIFIER, CH 2 RECO | J14 J15  3/02/23  3/02/23  3/02/23  3/16 J17 J16 J17 J19 J10 J11 J15 J16 J17 J19 J19 J10 J11 J15 J10 J11 J12 J10 J11 J12 J11 J12 J11 J12 J12 J12 J13 J14 J15 J16 J17 P23 J12 J16 J17 P23 J12 J16 J17 P23 J12 J06 J17 J18 J19   | # 11:48 #################################### | 1.820.712.8 PAGE 72 PAGE 72 PAGE 72 PAGE 72 PAGE 713.0 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.712.8 1.820.713.0 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8 1.820.714.8   |
| IGNAL NAME  C— CONT.OF  A-ADR-U  A-BADO1  A-BADO2  A-CHSTC                 | I.820  | 090 | 21 21 21 21 21 21 21 21 21 21 21 21 21 2   | 47<br>48<br>49<br>50<br>42<br>43<br>47<br>48<br>32<br>51<br>30<br>40<br>40<br>41<br>45<br>45<br>45<br>46<br>47<br>48<br>49<br>50<br>40<br>41<br>42<br>43<br>44<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40<br>40 | 30<br>30<br>30<br>30<br>8<br>8<br>8<br>8<br>8<br>9<br>10<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17<br>17  | EZC | • T                                     | APE DECK & | HF-ORIVER, CH 2 RECORD AMPLIFIER, CH 2  L I S T  | J14 J15  5/0*/14  15/0*/14  11/07/23  J16 J17  J19 J10 J10 J10 J11 J12 J12 J15 J17  P22 J12 J15 J17  P23 J12 J16 J17  P23 J12 J18 J19 J19 J19 J10 J11 J12 J10 J11 J12 J11 J12 J13 J14 J15 J16 J17  P23 J12 J18 J19   | # 11:48 #################################### | 1.820.712.8 PAGF 72 PAGF 73.0 PA |

| IGNAL NAME | COLOR | MI | ASY GR     | PELM     | PNT       | S | LV | TYPE | DESCRIPTION OF ELEMENT                                    |            | REMARK | ELEMENT NR.  |
|------------|-------|----|------------|----------|-----------|---|----|------|---|------------|--------|--------------|
| CONT.OF    |       |    | 21         |          | 32        | _ |    |      | LINE AMPLIFIER. CH 1                                      | J12        |        | 1.820.714.8  |
| A-DATA1    |       |    |            | 46       | 32        |   |    |      | MOND-STEREO-SWITCH  | J13        |        | 1.820.720.00 |
|            |       |    |            | 47       |           |   |    |      | HF-DRIVER. CH 2   | J14        |        | 1.870.713.0  |
|            |       |    |            | 48       |           |   |    |      | RECORD AMPLIFIER, CH 2                                    | J15        |        | 1.820.712.8  |
|            |       |    |            | 50       |           |   |    |      | REPRODUCE AMPLIFIER. CH 2<br>LINE AMPLIFIER. CH 2         | J16<br>J17 |        | 1-820-710-8  |
| -DATA2     |       |    | 20         | 33       | 16        | - |    |      | TO AUDIC BASIS BOARD. ELM31                               | P23        |        |              |
|            |       |    | 20         | 51<br>31 | 27B<br>16 |   |    |      | MASTER PERIPHERY CONTROLLER<br>FROM TAPE DECK BASIS BOARD | J12        |        | 1.820.728.0  |
|            |       |    |            | 40       | 33        |   |    |      | TIME CODE WRITE/READ UNIT                                 | J07        |        | 1.820.721.8  |
|            |       |    |            | 41       | 33        |   |    |      | TIME CODE DELAY UNIT                                      | 108        |        | 1.870.722.8  |
|            |       |    |            | 42       | 33        |   |    |      | HF-DRIVER. CH 1   | 109        |        | 1.870.713.0  |
|            |       |    |            | 43       | 33        |   |    |      | RECORD AMPLIFIER. CH 1                                    | J10        |        | 1.870.712.8  |
|            |       |    |            | 44       |           |   |    |      | REPRODUCE AMPLIFIER. CH 1                                 | J11        |        | 1-820-710-8  |
|            |       |    | 21         | 45       | 33        |   |    |      | LINE AMPLIFIER. CH 1                                      | J12        |        | 1.820.714.8  |
|            |       |    | 21         | 46       | 33        |   |    |      | MONO-STERED-SWITCH  | J13        |        | 1.870.770.0  |
|            |       |    | 21         | 47       | 33        |   |    |      | HF-DRIVER. CH 2   | J14        |        | 1.820.713.0  |
|            |       |    | 21         | 48       | 33        |   |    |      | RECORD AMPLIFIER. CH 2                                    | J15        |        | 1.820.712.8  |
|            |       |    | 21         | 49       | 33        |   |    |      | REPRODUCE AMPLIFIER. CH 2                                 | J16        |        | 1.820.710.8  |
|            |       |    | 21         | 50       | 33        | _ |    |      | LINE APPLIFIER. CH 2                                      | J17        |        | 1.820.714.8  |
| -OATA3     |       |    |            | 33       |           |   |    |      | TO AUDIC BASIS BOARD, FLM31                               | P23        |        |              |
|            |       |    |            | 51       |           |   |    |      | MASTER PERIPHERY CONTROLLER                               | J12        |        | 1.820.728.0  |
|            |       |    |            | 31       |           |   |    |      | FROM TAPE DECK BASIS BOARD                                | 106        |        |              |
|            |       |    |            | 40       |           |   |    |      | TIME CODE WRITE/READ UNIT                                 | J07<br>J08 |        | 1.870.771.8  |
|            |       |    |            | 41       |           |   |    |      | HF-DRIVER, CH 1   | 109        |        | 1.820.722.8  |
|            |       |    |            | 43       |           |   |    |      | RECORD AMPLIFIER. CH 1                                    | J10        |        | 1.820.712.8  |
|            |       |    |            | 44       |           |   |    |      | REPRODUCE AMPLIFIER. CH 1                                 | J11        |        | 1.820.710.8  |
|            |       |    |            | 45       |           |   |    |      | LINE AMPLIFIER. CH 1                                      | J12        |        | 1.820.714.8  |
|            |       |    |            | 46       |           |   |    |      | MONO-STEREO-SWITCH  | J13        |        | 1.820.720.0  |
|            |       |    | 21         | 47       | 34        |   |    |      | HF-DRIVER. CH 2   | J14        |        | 1.820.713.0  |
|            |       |    | 21         | 48       | 34        |   |    |      | RECORD AMPLIFIER. CH 2                                    | J15        |        | 1.870.712.8  |
|            |       |    |            | 49       | 34        |   |    |      | REPRODUCE AMPLIFIER. CH 2                                 | J16        |        | 1.820.710.8  |
|            |       |    |            | 50       |           |   |    |      | LINE AMPLIFIER. CH 2                                      | J17        |        | 1.820.714.81 |
| -OATA4     |       | _  |            | 33       |           | - |    |      | TO AUDIC BASIS BOARC. ELM31                               | P23        |        |              |
|            |       |    | 20         | 51       |           |   |    |      | MASTER PERIPHERY CONTROLLER                               | J12        |        | 1.870.778.CC |
|            |       |    | 21         | 31       |           |   |    |      | FROM TAPE DECK BASIS BOARD                                | 106        |        |              |
|            |       |    | 21         | 40       |           |   |    |      | TIME CODE WRITE/REAC UNIT                                 | J07        |        | 1.820.771.81 |
|            |       |    | 21         | 41       | 35        |   |    |      | TIME COCE DELAY UNIT                                      | JOB        |        | 1.820.722.8  |
|            |       |    | 21         | 42       | 35        |   |    |      | HF-ORIVER. CH 1   | 703        |        | 1-820-713-00 |
|            |       |    | 21         | 43       | 35        |   |    |      | RECORD AMPLIFIER. CH 1                                    | J10        |        | 1.870.712.8  |
|            |       |    | 21         | 44       | 35        |   |    |      | REPRODUCE AMPLIFIER. CH 1                                 | J11        |        | 1.826.710.8  |
|            |       |    | 21         | 45       | 35        |   |    |      | LINE AMPLIFIER. CH 1                                      | J12        |        | 1.820.714.8  |
|            |       |    |            | 46       |           |   |    |      | MONO-STEREO-SWITCH  | J13        |        | 1.820.720.0  |
|            |       |    |            | 47       |           |   |    |      | HF-ORIVER. CH 2   | J14        |        | 1.820.713.0  |
|            |       |    |            | 48       | 35<br>35  |   |    |      | RECORD AMPLIFIER, CH 2                                    | J15        |        | 1.820.712.8  |
|            |       |    | 2 I<br>2 I | 50       | 35        |   |    |      | REPRODUCE AMPLIFIER. CH 2<br>Line amplifier. CH 2         | J16<br>J17 |        | 1.820.710.8  |
|            |       |    |            |          |           | - |    |      | LINE AMPLIFIER, CH 2                                      | J17        |        | 1.870./14.81 |

| SIGNAL NAME | COLOR | MI | ASY | GRP | ELM | PNT      | SI | . 4 | TYPE | DESCRIPTION OF ELEMENT                            |            | REMARK | FLEMENT NR.  |
|-------------|-------|----|-----|-----|-----|----------|----|-----|------|---|------------|--------|--------------|
| CA-DATAS    |       |    |     | 20  | 33  | 22       |    | -   |      | TO AUDIO BASIS BOARD, ELM31                       | P23        |        |              |
|             |       |    |     | 20  | 51  | 30B      |    |     |      | MASTER PERIPHERY CONTROLLER                       | J12        |        | 1.820.728.0  |
|             |       |    |     | 21  | 31  | 22       |    |     |      | FROM TAPE DECK BASIS BOARD                        | 106        |        |              |
|             |       |    |     | 21  | 40  | 36       |    |     |      | TIME CODE WRITE/READ UNIT                         | J07        |        | 1.870.721.8  |
|             |       |    |     | 21  | 41  | 36       |    |     |      | TIME CODE DELAY UNIT                              | J08        |        | 1.820.722.81 |
|             |       |    |     | 21  | 42  | 36       |    |     |      | HF-DRIVER. CH 1                                   | 109        |        | 1.82C.713.00 |
|             |       |    |     | 21  | 43  | 36       |    |     |      | RECORD AMPLIFIER, CH 1                            | J10        |        | 1.820.712.81 |
|             |       |    |     | 21  | 44  | 36       |    |     |      | REPRODUCE AMPLIFIER. CH 1                         | JII        |        | 1-820-710-8  |
|             |       |    |     | 21  | 45  | 36       |    |     |      | LINE AMPLIFIER. CH 1                              | J12        |        | 1-820-714-8  |
|             |       |    |     | 21  | 46  | 36       |    |     |      | MONO-STEREO-SWITCH                                | J13        |        | 1.820.720.00 |
|             |       |    |     | 21  | 47  | 36       |    |     |      | HF-DRIVER. CH 2                                   | J14        |        | 1.820.713.00 |
|             |       |    |     | 21  | 48  | 36       |    |     |      | RECORD AMPLIFIER. CH 2                            | J15        |        | 1.420.712.8  |
|             |       |    |     | 21  | 49  | 36       |    |     |      | REPRODUCE AMPLIFIER. CH 2                         | J16        |        | 1.82C.710.8  |
|             |       |    |     | 21  | 50  | 36       |    |     |      | LINE AMPLIFIER. CH 2                              | J17        |        | 1.820.714.8  |
| CA-DATA6    |       |    |     | 20  | 33  | 24       |    |     |      | TO AUDIC BASIS BDARO. FLM31                       | P 2 3      |        |              |
|             |       |    |     | 20  | 51  | 31B      |    |     |      | MASTER PERIPHERY CONTROLLER                       | J12        |        | 1.870.778.00 |
|             |       |    |     | 21  | 31  | 24       |    |     |      | FROM TAPE DECK BASIS BCARD                        | 106        |        |              |
|             |       |    |     | 21  | 40  | 37       |    |     |      | TIME CODE WRITE/READ UNIT                         | J07        |        | 1.820.721.81 |
|             |       |    |     | 21  | 41  | 37       |    |     |      | TIME CODE DELAY UNIT                              | 108        |        | 1.820.722.81 |
|             |       |    |     | 21  | 42  | 37       |    |     |      | HF-DRIVER. CH 1                                   | 109        |        | 1.820.713.00 |
|             |       |    |     | 21  | 43  | 37<br>37 |    |     |      | RECORD AMPLIFIER. CH 1                            | 710        |        | 1.820.712.81 |
|             |       |    |     | 21  | 44  | 37       |    |     |      | REPRODUCE AMPLIFIER. CH 1<br>LINE AMPLIFIER. CH 1 | J11<br>J12 |        | 1.82(.710.8) |
|             |       |    |     | 21  | 46  | 37       |    |     |      | MONO-STEREO-SWITCH                                | J13        |        | 1.820.720.00 |
|             |       |    |     | 21  | 47  | 37       |    |     |      | HF-DRIVER. CH 2                                   | J14        |        | 1.820.713.00 |
|             |       |    |     | 21  | 48  | 37       |    |     |      | RECORD AMPLIFIER. CH 2                            | J15        |        | 1.820.712.8  |
|             |       |    |     | 21  | 49  | 37       |    |     |      | REPRODUCE AMPLIFIER. CH 2                         | J16        |        | 1.820.710.81 |
|             |       |    |     | 21  | 50  | 37       |    |     |      | LINE AMPLIFIER. CH 2                              | J17        |        | 1.820.714.8  |
| A-DATA7     |       |    |     | 20  | 33  | 26       | -  |     |      | TO AUDIC BASIS BOARD, ELM31                       | P23        |        |              |
|             |       |    |     | 20  | 51  | 32B      |    |     |      | MASTER PERIPHERY CONTROLLER                       | J12        |        | 1-820-728-00 |
|             |       |    |     | 21  | 31  | 26       |    |     |      | FROM TAPE DECK BASIS BOARD                        | J06        |        |              |
|             |       |    |     | 21  | 40  | 38       |    |     |      | TIME CODE WRITE/READ UNIT                         | J07        |        | 1.820.721.81 |
|             |       |    |     | 21  | 41  | 38       |    |     |      | TIME CODE DELAY UNIT                              | JOB        |        | 1.820.722.8  |
|             |       |    |     | 21  | 42  | 38       |    |     |      | HF-DRIVER. CH 1                                   | J09        |        | 1.820.713.00 |
|             |       |    |     | 21  | 43  | 38       |    |     |      | RECORD AMPLIFIER. CH 1                            | J10        |        | 1-820-712-81 |
|             |       |    |     | 21  | 44  | 38       |    |     |      | REPRODUCE AMPLIFIER. CH 1                         | J11        |        | 1-826-710-81 |
|             |       |    |     | 21  | 45  | 38       |    |     |      | LINE AMPLIFIER. CH 1                              | J12        |        | 1-820-714-81 |
|             |       |    |     | 21  | 46  | 38       |    |     |      | MONO-STEREO-SWITCH                                | J13        |        | 1.82C.720.00 |
|             |       |    |     | 21  | 47  | 38       |    |     |      | HF-ORIVER. CH 2                                   | J14        |        | 1.870.713.00 |
|             |       |    |     | 21  | 48  | 38       |    |     |      | RECORD AMPLIFIER, CH 2                            | J15        |        | 1.820.712.8  |
|             |       |    |     | 21  | 49  | 38       |    |     |      | REPRODUCE AMPLIFIER. CH 2                         | J16        |        | 1.82C.710.8  |
|             |       |    |     | 21  | 50  | 38       |    |     |      | LINE AMPLIFIER. CH 2                              | J17        |        | 1.820.714.81 |
| A-EQLO1     |       |    |     |     | 44  | 15       |    |     |      | REPRODUCE AMPLIFIER. CH 1                         | J11        |        | 1.820.710.81 |
|             |       |    |     | 21  | 45  | 16       |    | _   |      | LINE AMFLIFIER. CH 1                              | J12        |        | 1.820.714.81 |
| A-EQLO2     |       |    |     | 21  | 49  | 15       |    |     |      | REPRODUCE AMPLIFIER. CH 2                         | J16        |        | 1-826-710-81 |
|             |       |    |     | 21  | 50  | 16       |    | _   |      | LINE AMPLIFIER, CH 2                              | J17        |        | 1.82C.714.81 |
| A-LSW01     |       |    |     | 21  |     | 17       |    |     |      | REPRODUCE AMPLIFIER. CH I<br>LINE AMPLIFIER. CH I | J11<br>J12 |        | 1.820.710.81 |
|             |       |    |     |     | 45  | 18       |    | _   |      |   |            |        |              |
| CA-LSW02    |       |    |     | 21  | 49  | 17       |    |     |      | REPRODUCE AMPLIFIER. CH 2                         | J16        |        | 1.870.710.8  |
|             |       |    |     | 21  | 50  | 18       |    |     |      | LINE AMPLIFIER. CH 2                              | J17        |        | 1.820.714.81 |

| SIGNAL NAME  | COLOR                                     | MI   | ASY GRA   | ELA  | PNT   | 5        | LV   | TYPE  | DESCRIPTION OF ELEMENT   |   | REMARK    | FLEMENT NR.  |
|--|---|------|---|--|---|----------|------|---|--|---|-----------|--|
| CA-HONO  |   |      | 20<br>20  | 51   | 22<br>138   | -        |      |   | TO AUDIC BASIS BOARD, ELM30<br>MASIER PERIPHERY CONTROLLER   | P22<br>J12  |           | 1.820.728.60   |
|  |   |      | 21  |  | 39  | _        |      |   | FROM TAPE DECK BASIS BOARD<br>MONO-STEREO-SWITCH   | J05<br>J13  |           | 1.82C.720.00   |
| CA-RSWO1   |   |      | 2 l<br>2 l  |  | 18  |          |      |   | HF-DRIVER, CH 1<br>RECORD AMPLIFIER, CH 1  | 710<br>704  |           | 1.820.713.00<br>1.870.712.81   |
| CA-RSHO2   |   |      | 21<br>21  | 47   | 18  | _        |      |   | HF-ORIVER, CH 2<br>RECORD AMPLIFIER, CH 2  | J14<br>J15  | 3         | 1.020.713.00   |
| CA-SAFE  |   |      | 2C<br>20<br>21  | 33<br>51<br>31   | 2<br>208<br>2   | -        |      |   | TO AUDIC BASIS BOARD. ELM31<br>MASTER PERIPHERY CONTROLLER<br>FROM TAPE DECK BASIS BOARD   | P23<br>J12<br>J06   |           | 1.820.728.00   |
|  |   |      | 21  | 40   | 26<br>26  |          |      |   | TIME CODE WRITE/READ UNIT  | J07   |           | 1.820.721.81<br>1.820.722.81   |
|  |   |      | 21  | 42   | 26<br>26  |          |      |   | HF-DRIVER. CH 1<br>RECORD AMPLIFIER. CH 1  | 710<br>704  |           | 1.820.713.00   |
|  |   |      | 21<br>21<br>21  | 44<br>45<br>46   | 26<br>26<br>26  |          |      |   | REPRODUCE AMPLIFIER, CH I<br>LINE AMPLIFIER, CH 1<br>MONO-STERED-SWITCH  | JII<br>J12<br>J13   |           | 1.82C.710.81<br>1.82C.714.81<br>1.82C.72C.00   |
|  |   |      | 21  | 47   | 26<br>26  |          |      |   | HF-DRIVER. CH 2<br>RECORD AMPLIFIER. CH 2  | J14<br>J15  |           | 1.820.713.00   |
|  |   |      | 21<br>21  | 49<br>50   | 26<br>26  |          |      |   | REPRODUCE AMPLIFIER. CH 2<br>LINE AMPLIFIER. CH 2  | J16<br>J17  |           | 1.82C.710.8I<br>1.820.714.81   |
| CA-SYNO1   |   |      | 21  |  | 16<br>17  | _        |      |   | REPRODUCE AMPLIFIER, CH 1<br>LINE AMPLIFIER, CH 1  | JII<br>JII  |           | 1.82C.710.81<br>1.82C.714.81   |
| CA-SYND2   |   |      | 21<br>21  | 49<br>50   | 16<br>17  | _        |      |   | REPRODUCE AMPLIFIER. CH 2<br>LINE AMFLIFIER. CH 2  | J16<br>J17  |           | 1.820.710.81   |
| CPHASE-R   | 2 2                                       |      | 38<br>38  | 1 4 2  | 1<br>1<br>1   |          |      | F<br>L  | FROM GRP39, ELMO2<br>STATOR (MIRE FIELD)<br>TO GRP38. ELMO1  | J01<br>P02  |           |  |
| CPHASE-S   | <br>C                                     |      | 38  | 1  | 3   | -        |      | F   | FROM GRP39. ELMO2  | J01   |           |  |
|  | c<br>                                     |      | 38  | 2  | 3   | _        |      | H   | STATOR (WIRE FIELD) TO GRP38, ELMO1  | P02   |           |  |
| CPHASE-T   | 9   |      | 38<br>38<br>39  | 1 4 2  | 2<br>3<br>2   |          |      | F<br>L<br>H   | FROM GRP39. ELMO2<br>STATOR (WIRE FIELD)<br>TO GRP38. ELMO1  | J01<br>P07  |           |  |
| DCFBA-01   |   |      | 21  | 42   | l<br>3  | -        |      |   | FF-DRIVFR, CH 1 RECORD AMPLIFIER, CH 1   | J09<br>J10  |           | 1.820.713.00   |
| CCLBY-02   |   | _    | 21<br>21  |  | 1 3   | -        |      |   | FF-DRIVER. CH 2<br>RECORD AMPLIFIER. CH 2  | J14<br>J15  |           | 1.870.713.00   |
| ECUAL-01   |   | -    | 21  | 43   | 2   | -        |      |   | RECORD AMPLIFIER. CH 1   | J10   |           | 1.820.712.81   |
|  |   |      | 21  |  | 2   |          |      |   | REPRODUCE AMPLIFIER. CH I  | JII   |           | 1.826.710.81   |
| ECUAL-02   | TUDER AG                                  | **** | 21<br>21<br>21  | 48<br>49<br>1 G  | 2<br>2<br>N   | -<br>A L | **** | H R E   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T + 86/0                                     | J15<br>J16<br><br>5/14<br>************************************  |           | 1.820.712.81<br>1.82C.710.81   |
| **********   | ******                                    | 090. | 21<br>21<br>21  | 48<br>49<br>1 G  | 2<br>2<br>N   | 820      |      | ***********   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T + 86/0                                     | J15<br>J16<br><br>5/14<br>************************************  | ********* | 1.820.712.81<br>1.82C.710.81   |
| SIGNAL NAME  | COLDR                                     | 090. | 21<br>21<br>21<br>5<br>00 • S1  | 44<br>48<br>49<br>1 G<br>1 UDEF  | 2<br>2<br>2<br>N<br>R A   | 820      |      | TYPE  | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>*******<br>5/14<br>******<br>7/23 -   | 00        | 1.820.712.81<br>1.82C.710.81<br>PAGF 76  |
| HILLI ST   | 1.82C                                     | 090. | 21<br>21<br>21<br>5<br>00 • S1  | 44<br>48<br>49<br>1 G<br>1 UDE<br>1 42<br>47<br>66<br>70   | 2<br>2<br>2<br>N<br>N<br>R A<br>PNT                                       | 820      |      | APE BECK & AUG  | REPRODUCE ANPLIFIER. CH I RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T ** 86/0  110 ** 83/0  0ESCRIPTION OF ELEMENT | J15<br>J16<br>******<br>5/14<br>******<br>2/23 -  | 00        | 1.820.712.81<br>1.82C.710.81<br>PAGF 76  |
| HILLI ST   | 1.82C                                     | 090. | 21 21 21 21 21 21 21 21 21 21 21 21 21 2  | 44<br>48<br>49<br>1 G<br>1 UDEF<br>42<br>47<br>66<br>70<br>1   | 2<br>2<br>2<br>N<br>N<br>P N T<br>9                                       | 820      |      | TYPE  | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T   | J15<br>J16<br>***********************************   | 00        | 1.820.712.81<br>1.82C.710.81<br>PAGF 76  |
| HILLI SI   | 1.82C.                                    | 090. | 21 21 21 21 21 21 21 21 21 21 21 21 21 2  | 44<br>48<br>49<br>1 G<br>1 UDEF<br>42<br>47<br>66<br>70<br>1 1<br>40<br>70<br>1  | 2<br>2<br>2<br>N<br>N<br>R A<br>PNT<br>9<br>1<br>11<br>11                 | 820      |      | TYPE  U U B   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>***********************************   | 00        | 1.820.712.81<br>1.82C.710.81<br>PAGF 76<br>PEMENT NR.<br>1.820.713.00                            |
| MILLI SIGNAL NAME ERACS-01 ERACS-02  | COLOR 77 77 7 7 9 9 9                     | 090. | 21 21 21 21 21 21 60 21 21 21 21 21 21 21 21 21 21 21 21 21   | 44<br>48<br>49<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2                                     | 820      |      | TYPE  U U B U B A   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T   | J15<br>J16<br>***********************************   | 00        | 1.820.712.81<br>1.827.710.81<br>PAGF 76<br>PAGF 76<br>PLEMENT NR.<br>1.820.713.00                |
| HILLI SIGNAL NAME ERACS-01 ERACS-02 ERAHH-TC   | 1.82C.<br>COLOR<br>77777                  | 090. | 21 21 21 21 21 21 21 21 20 20 20 21 21 21 21 21 21 21 21 21 21 21 21 21   | 44<br>48<br>49<br>1 G<br>1 UDEF<br>42<br>47<br>66<br>70<br>1 1<br>42<br>70<br>1 1<br>47<br>70<br>1 1   | 2 2 2 N N PNT 9 9 1 1 1 1 1 1 1 1 4 3 3 3 3 3 1 4 1 8 1 8 1 8 1 8 3 6 3 6 | 820      |      | TYPE  U U B A U B A U   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>***********************************   | 00        | 1.820.712.81<br>1.820.710.81<br>PAGF 76<br>PAGF 76<br>   |
| SIGNAL NAME ERACS-01 ERACH-TC ERAHH-TC ERAHH-01  | 1.82C                                     | 090. | 21 21 21 21 21 21 21 21 21 21 21 21 21 2  | 444<br>48 49<br>11 G<br>11 G<br>11 G<br>12 G<br>13 G<br>14 G<br>16 G<br>17 G<br>18 G | 2 2 2 N N N N N N N N N N N N N N N N N                                   | 820      |      | TYPE  U U B B  A U U B A U U B A U U U B A U U U B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U U B B A U U B B A U U U B B B A U U U B B B A U U U B B B B  | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T   | J15<br>J16<br>5/14<br>5/14<br>J16<br>J17<br>J17<br>J18<br>P01<br>J17<br>J18<br>P01<br>J18<br>P01<br>J18<br>P01<br>J18<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19   | 00        | 1.820.712.81<br>1.820.710.81<br>P A G F 76<br>   |
| ERAHH-O1  ERAHL-TC   | 1.82C                                     | 090. | 21 21 21 21 21 21 21 20 21 21 21 60 21 21 21 60 21 21 21 60 21 21 60 21 21 21 60 21 21 21 60 60 21 21 21 60 60 60 60 60 60 60 60 60 60 60 60 60   | 444<br>488<br>499<br>FLU<br>422<br>477<br>666<br>700<br>11<br>427<br>700<br>11<br>427<br>700<br>11<br>427<br>700<br>11   | 2 2 2 N N N N N N N N N N N N N N N N N                                   | 820      |      | TYPE  U U B A U B A U B A U U B A U U B A U U B A U U B A U U B A U U B A U U B A U U B B A U U B B A U U B B A U U B B A U U B B A U U B B A U U B B A U U B B A U U B B B A U U B B B A U U B B B A U U B B B B   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16 S114 S114 S114 S114 S114 S114 S114 S1   | 00        | 1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00                             |
| ERAHH-OI ERAHL-TC ERAHL-TC ERAHL-TC ERAHL-TC   | 1.82C                                     | 090. | 21 21 21 21 21 21 20 20 21 21 60 21 60 60 21 60 60 21 60 60 60 60 60 60 60 60 60 60 60 60 60 | 444<br>48 49<br>1 6 6<br>100 EEL/<br>42 47<br>66 70<br>1 1<br>42 70<br>1 1<br>42 70<br>1 1<br>42 70<br>1 42 70   | 2 2 2 N N N N N N N N N N N N N N N N N                                   | 820      |      | TYPE  U U B A U B A U B A U B A U B A U B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B B   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T   | J15 J16   | 00        | 1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00               |
| SIGNAL NAME ERACS-01 ERACS-02 ERAHH-TC ERAHH-O1 ERAHL-TC ERAHL-O1 ERAHL-O1   | 1.82C                                     | 090. | 21 21 21 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 21 21 60 60 60 60 60 60 60 60 60 60 60 60 60  | 444<br>48 49<br>1 66 6<br>100 EEL/<br>42 47 66 6<br>70 70 1<br>1 42 70 1<br>1 42 70 1<br>1 42 70 1<br>1 47 70 1  | 2 2 2   | 820      |      | TYPE  U U B A U B A U B A U B A U B A U B A U B A U B A U B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B B   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15<br>J16<br>  | 00        | 1.820.712.81<br>1.820.713.C0<br>PAGF 76<br>PAGF 76<br>   |
| ERAHH-O1 ERAHL-O2 ERAHM-O1 ERAHM-O1  | 1.82C                                     | 090. | 21 21 21 21 60 21 60 21 60 21 60 21 60 21 60 21 60 21 60 21 60 21 60 21 60 21 60 60 21 60 60 60 60 60 60 60 60 60 60 60 60 60  | 444 4849 1   | 2 2 2 N N N N N N N N N N N N N N N N N                                   | 820      |      | TYPE  U U B B A U B A U B A U B A U B A U B A U B A U B A U B A U B A U U B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B A U U B B B B   | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16 5/14 5/14 5/14 J18 J09 J14 J18 P01 J07 J18 J07 J07 J18 J07 J07 J18 J07  | 00        | 1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00 |
| ERAHH-O1  ERAHL-O2  ERAHM-O2  ERAHM-O2   | 1.82C                                     | 090. | 21 21 21 21 21 21 20 20 21 21 20 20 20 21 21 20 20 20 21 21 20 20 20 21 21 20 20 20 21 21 20 20 20 20 20 20 20 20 20 20 20 20 20  | 444 4849 1 G 6670 1 1 4270 1 1 4770 1 1 4770 1 1 47770 1 1 47770 1 1 47770 1 1   | 2 2 2   | 820      |      | TYPE  U U B A U B A U B A U B A U B A U B A U B A U B B A U U U B B A U U U B B B A U U U B B B A U U U B B B B | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  L I S T  | J15 J16  *******  J09 J14 J18 P01 J07 J18 P01 J09 J18 | 00        | 1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00               |
| ERAHH-O1  ERAHL-TC  ERAHL-TC | COLOR 77777777777777777777777777777777777 | 090. | 21 21 21 21 21 21 20 20 21 21 21 20 20 20 21 21 20 20 20 21 21 20 20 20 20 20 20 20 20 20 20 20 20 20   | 444 4849  FELL 42 47666 700 1 42 707 1 42 700 1 477 700 1 42 700 1 42 700 1 43 47 700 1 43 47 700 1 43 47 700 1   | 2 2 2   | 820      |      | TYPE  U U B  U B A  U B A  U B A  U B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B A  U B B B B  | REPRODUCE AMPLIFIER. CH I  RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2  L I S T   | J15 J16   | 00        | 1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00  1.820.713.00 |

| SIGNAL NAME  |  |     | ASY GRP ELM   |  |      |  |              | DESCRIPTION OF ELEMENT   |   | REMARK   | ELEMENT NR.  |
|--|--|-----|---|--|------|--|--------------|--|---|----------|--|
| FRMGND   | . <u> </u>   | === | 20 31<br>20 31<br>20 50<br>20 50<br>25 4<br>25 4<br>25 5<br>25 5  | 1<br>8<br>1<br>8<br>1<br>9   |      | 8<br>8<br>8  |              | TO GRP25. ELMO4/O5 TO GRP25. ELMO4/O5 SMPTE/EBU INTERFACE SMPTE/EBU INTERFACE CONNECTOR SMPTE/EBU BUS CONNECTOR SMPTE/EBU BUS CONNECTOR SMPTE/EBU BUS CONNECTOR SMPTE/EBU BUS  | P21<br>P21<br>J11<br>J11<br>J04<br>J05<br>J05   |          | 1 - 820 - 751 - 0  |
| GND  | 5-4<br>5-4<br>4  |     | 1 1<br>2 1<br>2 2<br>2 3<br>4 1<br>20 30<br>20 30<br>22 1<br>22 2<br>23 1<br>23 2<br>24 1   | 3<br>1<br>1<br>1<br>1<br>1<br>1<br>8<br>1<br>1<br>1<br>1   |      | ,<br>,   |              | POWER CONNECTOR EARTH CONTACT EARTH CONTACT EARTH CONTACT LINE FILTER SSOA INT. SYNCHRONIZER SSOA INT. SYNCHRONIZER CONNECTOR XLR. INPUT CONNECTOR XLR. OUTPUT CONNECTOR XLR. INPUT   | P01 P70 P70 J01 P01 J01 P01 J01   |          | 1.010.001.5  |
|  | 0  |     | 24 2<br>27 5<br>38 5  | 1<br>1<br>1  |      | Y<br>L   |              | CONNECTOR XLR. OUTPUT  GROUND CONNECTION (WIRE FIELD)  | P01<br>P05  |          |  |
| HEADPH-1   | 6<br>6<br>6  | _   | 28 5<br>28 6<br>71 5<br>71 6  | 3<br>3<br>3<br>3   |      | N<br>1<br>N<br>L   |              | TO PHONES CONNECTOR PHONES CONNECTOR TO PHONES CONNECTOR PHONES CONNECTOR  | J02   |          |  |
| HEADPH-2   | 9 9 9  |     | 28 5<br>28 6<br>71 5<br>71 6  | 2<br>2<br>2<br>2   |      | N<br>L<br>N  |              | TO PHONES CONNECTOR PHONES CONNECTOR TO PHONES CONNECTOR PHONES CONNECTOR  | J02   |          |  |
| INPAD-01   | 6  |     | 21 11<br>21 45<br>21 46<br>70 8<br>70 9   | 6<br>7<br>1<br>6   |      | N  |              | TO VU-MFTER PANEL, CH 1 LINE AMPLIFIER. CH 1 MONO-STEREG-SWITCH VU-METER CH D1. AUDIO AUDIO CH O1 (FROM GRP21, ELMI  | J07<br>J12<br>J13<br>J01<br>J J02   |          | 1.870.714.81   |
| INPAD-D2   | 6  |     | 21 12<br>21 46<br>21 50<br>70 10<br>70 11   | 6<br>3<br>7<br>6   |      | N  |              | TO VU-METER PANEL. CH 2 MOND-STERED-SWITCH LINE AMPLIFIER. CH 2 VU-METER CH 02. AU010 AUDIO CH 02 (FROM GRP21. ELM12   | J03<br>J13<br>J17<br>J03  |          | 1-82C-720-00<br>1-820-714-8  |
| INPDI-01   | 9  |     | 21 11<br>21 13<br>21 45<br>28 1<br>70 8   | 5<br>3<br>6<br>3   |      | N<br>N   |              | TO VU-METER PANEL. CH 1 TO SOURCE SELECTOR (GRP28) LINE AMPLIFIER. CH 1 AUDIO INPUT (FROM GRP21. ELM13   | J02<br>J04<br>J12   |          | 1-820-714-8  |
| **********   | 9  |     | 70 9<br>70 13<br>71 1   | 5<br>5<br>3<br>3   |      | N  |              | VU-METER CH 01. AU010<br>AU010 CH 01 IFROM GRP21. ELM11<br>MONITOR AMPLIFIER. AU010<br>AU010 INPUT   | J01   |          |  |
| **********   | 1.820.0  | 90. | 70 9<br>70 13<br>71 1<br>   | 5<br>3<br>3<br>N A   | 20 * | N<br>W<br>W<br>TAPE  | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELMII MONITOR AMPLIFIER, AUDIO AUDIO IMPUT  L I S T   | J01<br>J06<br>J01<br>   | ******** |  |
| *********  | 1.820.0  | 90. | 70 9 70 13 71 1  *********************************  | 5<br>3<br>3<br>N A   | 20 * | N<br>W<br>W<br>TAPE  | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELM11 MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T * 86/   | J01<br>J02<br>J06<br>J01<br>J05/14<br>J07<br>J03<br>J04<br>J17<br>J01<br>J01<br>J03   | 00       | ELEMENT NR.  |
| SIGNAL NAME  | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1   | 5<br>3<br>3<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8 | 20 * | N<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W<br>W   | DECK & AUDIO | AUDIO CH DI [FROM GRP21, ELM11 MONITOR AMPLIFIER, AUDIO AUDIO INPUT  L I S T * 86/ ***  DESCRIPTION OF ELEMENT  TO VU_METER PANEL, CH 2 TO SOURCE SELECTOR [GRP28] LINE AMPLIFIER, CH 2 AUDIO INPUT (FROM GRP21, ELM13 VU_METER CH 02, AUDIO AUDIO CH 02 (FROM GRP21, ELM13 VU_METER CH 02, AUDIO AUDIO CH 02 (FROM GRP21, ELM12 AUDIO CH 03 (FROM GRP21, ELM12 AUDIO CH 04 (FROM GRP21, ELM12 AUDIO CH 07 (FROM GR | J01<br>J02<br>J06<br>J01<br>J05/14<br>J07<br>J03<br>J04<br>J06<br>J01<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07                                 | 00       | ELEMENT NR.  |
| SIGNAL NAME  | 1.820.0<br>COLOR<br>0<br>9                               | 90. | ASY GRP ELM  21 12 21 13 21 50 28 1 70 10 70 11 70 11 70 11 70 11 70 11 70 12 71 1  | 5 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 20 * | TAPE   | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELMII MONITOR AMPLIFIER. AUDIO AUDIO IMPUT  L I S T * 86/ ************************************  | J01<br>J02<br>J06<br>J01<br>J05/14<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07  | 00       | ELEMFNT NR.  |
| SIGNAL NAME INPDI-02 IR-REFEX  | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 20 * | N N TYP  | DECK & AUDIO | AUDIO CH DI IFROM GRP21. ELMII MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T * 86/ ************************************  | J01<br>J02<br>J06<br>J01<br>J07<br>J07<br>J03<br>J04<br>J07<br>J03<br>J04<br>J07<br>J07<br>J07<br>J08<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09 | 00       | ELEMFNT NR. 1.820.714.8  |
| SIGNAL NAME INPDI-02 IR-REFEX K-BRAKEL   | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  | 20 * | N N W TYP N N N N B B  | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELMII MONITOR AMPLIFIER, AUDIO AUDIO INPUT  L I S T * 86/ ***  DESCRIPTION OF ELEMENT  TO VU-METER PANEL, CH 2 TO SOURCE SELECTOR IGRP28) LINE AMPLIFIER, CH 2 AUDIO INPUT IFROM GRP21, ELMI3 VU-METER CH 02, AUDIO AUDIO CH 02 (FROM GRP21, ELMI2 MONITOR AMPLIFIER, AUDIO AUDIO INPUT  CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTROL TO BRAKE SOLENOIO. LEFT BRAKE SOLENOIO.  TAPE DECK PERIPHERY CONTR.  MIRE FIELD ITO BRAKE SOLENOIOS TO BRAKE SOLENOIO. RIGHT BRAKE SCLENOIO  HF-ORIVER, CH I RECORD AMPLIFIER, CH 1   | J01<br>J02<br>J06<br>J01<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07  | 00       | 1.82C.762.00  1.82C.762.00  1.82C.713.C0 1.82C.713.C                               |
| SIGNAL NAME INPDI-O2  IR-REFEX  K-BRAKEL  K-BRAKER   | 1.820.0<br>COLOR<br>0<br>9                               | 90. | ASY GRP ELM  21 12 21 13 21 50 70 11 70 13 71 1  22 5 2 28 1 70 10 70 11 70 13 71 1  25 2 25 3 27 3 27 4 20 43 20 63 20 72 40 1  20 43 20 63 20 72 40 1  20 43 20 63 20 72 40 1  20 43 20 63 20 72 40 1  20 43 20 63 20 72 40 1 | 5 3 3 3 3 4 4 6 6 7 7 7 7 7 7 1 3 1 3 2 5 2 5 2 5 2 5 2 2 2 2 2 2 2 2 2 2 2                      | 20 * | N N W TYP N N N N B B  | DECK & AUDIO | AUDIO CH OI [FROM GRP21, ELM11 MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T   | J01<br>J02<br>J06<br>J01<br>J07<br>J07<br>J03<br>J04<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07  | 00       | 1.82C.762.C1 1.82C.762.C1 1.82C.713.C 1.82C.710.8 1.82C.710.8 1.82C.710.8          |
| SIGNAL NAME INPDI-02 IR-REFEX K-BRAKEL K-BRAKER  | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 3 4 8 4 8 4 8 4 8 4 8 4 8 4 8  | 20 * | N N W TYP N N N N B B  | DECK & AUDIO | AUDIO CH DI IFROM GRP21. ELMII MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T * 86/ ************************************  | J01<br>J02<br>J06<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07   | 00       | 1.82C.762.00  1.82C.762.00  1.82C.713.00  1.82C.710.80  1.82C.710.80               |
| SIGNAL NAME INPDI-02  IR-REFEX  K-BRAKEL  K-BRAKEL  K-REC-01                                   | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 3 4 6 6 6 6 6 6 6 6 6 6 6 6 6  | 20 * | N N N N N N N N N N N N N N N N N N N  | DECK & AUDIO | AUDIO CH DI IFROM GRP21. ELMII MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T * 86/ ***  DESCRIPTION OF ELEMENT  TO VU-METER PANEL. CH 2 TO SOURCE SELECTOR IGRP28) LINE AMPLIFIER. CH 2 AUDIO INPUT IFROM GRP21. ELMI3 VU-METER CH 02. AUDIO AUDIO CH 02 (FROM GRP21. ELMI2 AUDIO INPUT IFROM GRP21. ELMI2 AUDIO TO AUDIO AUDIO CH 02 (FROM GRP21. ELMI2 TO CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO BRAKE SOLENOIO. LEFT BRAKE SOLENOIO  TAPE DECK PERIPHERY CONTR. WIRE FIELD (TO BRAKE SOLENOIOS TO BRAKE SOLENOIO. RIGHT BRAKE SCLENOIO  MF-ORIVER. CH 1 RECORD AMPLIFIER. CH 1 REPOROUCE AMPLIFIER. CH 2 RECORD AMPLIFIER. CH 2 REPOROUCE AMPLIFIER. CH 2 REPOROUCE AMPLIFIER. CH 2 CONNECTOR SYNCHRONIZER  | J01<br>J02<br>J06<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07   | 00       | 1.82C.762.C0  1.82C.762.C0  1.82C.713.C0  1.82C.710.81  1.82C.710.81               |
| SIGNAL NAME INPDI-O2  IR-REFEX  K-BRAKEL  K-BRAKER  K-REC-O1  K-REC-O2                         | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 20 * | N N N N N N N N N N N N N N N N N N N  | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELMII MONITOR AMPLIFIER. AUDIO AUDIO IMPUT  L I S T * 86/ ************************************  | J01<br>J02<br>J03<br>J03<br>J03<br>J03<br>J04<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07   | 00       | 1.82C.762.C0  1.82C.762.C0  1.82C.713.C0  1.82C.710.81  1.82C.710.81               |
| SIGNAL NAME INPDI-O2  IR-REFEX  K-BRAKEL  K-BRAKER  K-REC-O1  K-REC-O2  KEY/COIR  LINE1        | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 5 5 2 2 1 4 4 5 5 2 2 1 1 5 5 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7    | 20 * | N N N N N N N N N N N N N N N N N N N  | DECK & AUDIO | AUDIO CH OI [FROM GRP21, ELM11 MONITOR AMPLIFIER, AUDIO AUDIO INPUT  L I S T   | J01<br>J02<br>J06<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07   | 00       | 1.82C.762.00  1.82C.762.00  1.82C.713.00  1.82C.713.00  1.82C.712.81  1.82C.710.81 |
| SIGNAL NAME INPDI-OZ  IR-REFEX  K-BRAKEL  K-BRAKEL  K-REC-O1  K-REC-O2  KEY/COIR  LINE1        | 1.820.0<br>COLOR<br>0<br>9                               | 90. | 70 9 70 13 71 1 1 1 25 2 25 3 27 3 27 4 1 1 20 43 20 63 20 72 40 1 20 43 21 44 1 1 21 44 1 1 1 1 1 1 1 1 4 1 1 1 1  | 5 3 3 3 3 3 4 8 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 20 * | N  | DECK & AUDIO | AUDIO CH DI IFROM GRP21. ELMII MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T   | J01<br>J02<br>J06<br>J07<br>J07<br>J03<br>J04<br>J07<br>J07<br>J07<br>J07<br>J09<br>J10<br>J09<br>J10<br>J11<br>J15<br>J16<br>J07<br>P01                      | 00       | 1.82C.762.CC  1.82C.762.CC  1.82C.713.CC 1.82C.713.CC 1.82C.710.81 1.82C.710.81    |
| SIGNAL NAME INPDI-O2  IR-REFEX  K-BRAKEL  K-BRAKEL  K-REC-O1  K-REC-O2  KEY/COIR  LINE1  LINE2 | 1.820.00 COLOR 0 9 9 11 11 11 11 11 11 11 11 11 11 11 11 | 90. | 70 9 70 13 71 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 5 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  | 20 * | TAPE  V TYP  N N  N  B  B  U  F  M  V  T  V  V | DECK & AUDIO | AUDIO CH DI IFROM GRP21, ELMII MONITOR AMPLIFIER. AUDIO AUDIO INPUT  L I S T   | J01<br>J02<br>J06<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07<br>J07   | 00       |  |

| SIGNAL NAME  | COLOR  | н    | ASY GRP  | ELM PNT  | 5     | LV   | TYPE  | DESCRIPTION OF ELEMENT   |   | REMARK | ELEMENT NR.  |
|--|--|------|--|--|-------|------|---|--|---|--------|--|
| LINFB-OL   | 6  |      |  | 45 15  | -     |      | U<br>0                                      | LINE AMPLIFIER. CH 1<br>CONNECTOR LINE FILTER. INPUT   | J12   |        | 1.820.714.81   |
| L I NFB-02   | 6  |      | 22<br>21   | 3 1<br>50 15   | -     |      | U   | LINE AMPLIFIER. CH 2   | J17   |        | 1.820.714.81   |
|  | 6<br>  |      | 23   | 3 1  | - 1-  |      | D   | CONNECTOR LINE FILTER. INPUT   | POI   |        |  |
| LINSA-TC   |  |      | 24   | 1 2  | -     |      |   | CONNECTOR XLR. INPUT   | J01   |        |  |
| LINSA-01   |  |      | 22   | 1 2  | 1_    |      |   | CONNECTOR XLR. INPUT   | J0 1  |        |  |
| L INSA-02  |  |      | 23   | 1 2  | (=    |      |   | CONNECTOR XLR. INPUT   | J01   |        |  |
| LINSB-TC   |  |      |  | 1 3  | -     |      |   | CONNECTOR XLR. INPUT   | J01   |        |  |
| LINS8-01<br>LINS8-02   |  | 4-   | 22   | 1 3  | -     |      |   | CONNECTER XLR. INPUT   | J01   |        |  |
| LCUFA-TC   | 9  |      | 21   | 40 17  | -     |      | U   | TIME CODE WRITE/READ UNIT  | J07   |        | 1.820.721.81   |
|  | 9  |      | 24   | 4 4  |       |      | Ď   | CONNECTOR LINE FILTER. OUTPUT  | P02   |        |  |
| LCUFA-01   | 0  |      | 21<br>21<br>22<br>70<br>70   | 11 2<br>45 3<br>4 4<br>8 2<br>9 2  |       |      | N<br>U<br>D                                 | TO VU-METER PANEL. CH 1 LINE AMPLIFIER. CH 1 CONNECTOR LINE FILTER. DUTPUT VU-METER CH 01. AUDIO AUDIO CH 01 (FROM GRP21. ELMII) | J02<br>J12<br>P02<br>J01<br>J02   |        | 1.820.714.81   |
| LCUFA-02   | c<br>s<br>o                                      |      | 21<br>21<br>23   | 12 2<br>50 3<br>4 4  | -     |      | N<br>U<br>D                                 | TO VU-METER PANEL. CH 2<br>LINE AMPLIFIER. CH 2<br>CONNECTOR LINE FILTER. OUTPUT   | J03<br>J17<br>P02   |        | 1.870.714.81   |
|  |  |      | 7 C  | 10 2<br>11 2   |       |      |   | AUDIO CH 02 (FROM GRP21. ELMIZ)  | J03   |        |  |
| LCUF8-TC   | 6  |      | 21<br>24   | 40 18<br>4 1   |       |      | U<br>0                                      | TIME CODE WRITE/READ UNIT<br>CONNECTOR LINE FILTER. OUTPUT   | J07   |        | 1.870.771.81   |
| LCUFB-01   | 6  |      | 21<br>21   | 11 3<br>45 4   |       |      | N<br>U                                      | TO VU-METER PANEL. CH 1<br>LINE AMPLIFIER. CH 1  | J02   |        | 1.820.714.81   |
|  | 6  |      | 22<br>70<br>70   | 4 1<br>8 3<br>9 3  |       |      | 0   | CONNECTOR LINE FILTER. OUTPUT<br>VU-METER CH 01. AUGTO<br>AUDIO CH 01 (FRCM GRP21. ELMII)  | J01<br>J02  |        |  |
| <br>LCUF8-02   | 6  |      | 21   | 12 3   | -     |      | N   | TO VU-METER PANEL. CH 2  | J03   |        |  |
| 200,0 02   | 6  |      | 21   | 50 4<br>4 1  |       |      | U   | LINE AMPLIFIER. CH 2<br>CONNECTOR LINE FILTER. OUTPUT  | J17   |        | 1.820.714.81   |
|  |  |      | 70   | 10 3<br>11 3   |       |      |   | VU-METER CH 02. AUDIO<br>AUDIO CH 02 (FROM GRP21. ELM12)   | J03   |        |  |
| LCUSA-TC   |  |      | 24   | 2 2  | -     |      |   | CONNECTER XLR. OUTPUT  | P01   |        |  |
| LCUSA-J1   |  |      | 22   | 2 2  | -     |      |   | CONNECTER XLR. OUTPUT  | P0 1  |        |  |
| . FUEA 02  |  |      | 23   | 2 2  | -     |      |   | CONNECTER XLR. OUTPUT  | P01   |        |  |
| LCU3#-02   |  |      |  |  |       |      |   |  |   |        |  |
|  | ******   | **** | 24<br>S I  | 2 3<br>G N   |       | **** | W I R E                                     | CONNECTOR XLR. GUTPUT  | P01   |        | P A G E 80   |
| LCUSB-TC  MILLIS  MILL | 1.820  | 090  | S I  | 2 3 G N UOER A   | £ 2C  | * 1  | APE DECK & AUDIO                            | CONNECTOR XLR. GUTPUT  L I S T   | P01   | - 00   | PAGE 80 •  |
| MILLI S  | 1.820  | 090  | 24<br>S I<br>00 • ST   | G A UOER A ELM PNT 2 3   | £ 2C  | * 1  | APE DECK & AUDIO                            | CONNECTOR XLR. OUTPUT  L I S T • 66/0'  • 83/0'  DESCRIPTION OF ELEMENT  CONNECTOR XLR. OUTPUT                                   | P01   | - 00   | •  |
| LCUSB-TC  HILLI S  SIGNAL NAME LCUSB-01 LDUSB-02   | 1.820  | 090  | 24<br>S I<br>00 SI<br>ASY GRP<br>22<br>23  | 2 3  G N  UOER A  P ELM PN1  2 3  2 3  | £ 2C  | * 1  | APE DECK & AUDIO                            | CONNECTOR XLR. OUTPUT  L I S T   | P01<br>5/14<br>2/23 -   | - 00   | •  |
| ************   | 1.820.<br>COLOR                                  | 090  | 24<br>S I<br>00 • SI<br>ASY GRP  22  23  21 21 28 70 70  | 2 3 G N U0ER A ELM PN1 2 3 2 3 13 1 1 1 1 1 2 1 13 1   | £ 2C  | * 1  | TYPE  | CONNECTOR XLR. OUTPUT  L I S T   | P01  5/14  6/2/23  P01  P01  J04 J12 J05 J06  | - 00   | •  |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSB-02 MONIT-01   | 1.820.<br>COLOR                                  | 090  | 24<br>S I I I I I I I I I I I I I I I I I I I  | 2 3<br>G N<br>UUGER A<br>2 3<br>2 3<br>13 1<br>1 1 1<br>1 1 1<br>1 2 1<br>1 3 1  | £ 2C  | * 1  | TYPE  N N                                   | CONNECTOR XLR. GUTPUT  L I S T   | P01 P01 P01 J04 J12 J01 J05 J06 J01   | - 00   | ELEMENT NR.  |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSB-02 MONIT-01   | 1.820.<br>COLOR                                  | 090  | 24<br>S I<br>00 • SI<br>ASY GRP  22  23  21 21 28 70 70  | 2 3  G N  UUGER A  ELM PN1  2 3  2 3  13 1 1 1 1 1 1 1 1 1 1   | £ 2C  | * 1  | TYPE  | CONNECTOR XLR. GUTPUT  I S T   | P01  5/14  6/2/23  P01  P01  J04 J12 J05 J06  | - 00   | ELEMENT NR.  |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSB-02 MONIT-01   | COLOR 9 9 9 9 9                                  | 090  | 24   | 2 3 C C C C C C C C C C C C C C C C C C  | £ 2C  | * 1  | TYPE  N N N N N                             | CONNECTOR XLR. GUTPUT  L I S T   | P01 P01 J04 J12 J05 J06 J01 J05 J06 J01 J05 J06 J07 | - 00   | ELEMENT NR   |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSB-02 MONIT-01   | 1.820.<br>COLOR                                  | 090  | 24   | 2 3 6 k c c c c c c c c c c c c c c c c c c  | £ 2C  | * 1  | TYPE  N N N                                 | CONNECTOR XLR. GUTPUT  I S T   | P01  P01  P01  J04  J12  J01  J05  J01  J07  J07  J07  J07  J07  J07  J07               | - 00   | ELEMENT NR   |
| LCUSB-TC  HILLI S  SIGNAL NAME LCUSB-01 LOUSB-02 MON1T-01  MON1T-02  | COLOR 9 9 9 9 9                                  | 090  | 24<br>S [ ]<br>S 00 • S 10<br>ASY GRP  22  23  21  28  70  70  71  21  28  70  70  71  71  | 2 3  | £ 2C  | * 1  | TYPE  N N N N N                             | CONNECTOR XLR. GUTPUT  1 S T   | P01 P01 P01 J04 J01 J05 J06 J01 J05 J06 J01 J06 J01                                     | - 00   | ELEMENT NR   |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-92  OR-CMCLK  OR-NVCLK   | COLOR 9 9 9 9 9                                  | 090  | 24   | 2 3 G A UDGR A 2 3 2 3 13 1 45 1 1 1 13 5 50 1 1 5 1 2 5 13 5 12 5 13 5 12 5 13 5 12 5 13 5 13 5 13 5 13 5 14 5 17 7 18 7 18 7 18 7 18 7 18 7 18 7 18 7  | £ 2C  | * 1  | TYPE  N N N N B B                           | CONNECTOR XLR. GUTPUT  I S T   | P01 P01 P01 J04 J12 J01 J05 J06 J01 J07 P03 J07 P03 P07                                 | - 00   | ELEMENT NR   |
| LCUSB-TC  WILLIS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-02  OR-CMCLK  OR-NVCLK  CR-MVDIR   | COLOR 9 9 9 9 9                                  | 090  | 24  S I I I I I I I I I I I I I I I I I I  | 2 3  G A  CLM PNT  2 3  13 1 1 1 1 1 13 5 5 1 1 5 1 5 1 5 1 5 1 3 21 2 7 3 13  2 1C 3 19   | £ 2C  | * 1  | TYPE  N N N B B B                           | CONNECTOR XLR. GUTPUT  1 S T   | P01 P01 P01 J04 J05 J06 J07                         | - 00   | ELEMENT NR   |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-02  OR-CMCLK  OR-NVCLK  CR-NVDIR  OR-SYENB   | 1.820<br>COLOR 9 9 9 9                           | 090  | 24  S [ ]   | 2 3  G A  CUORR A  ELM PN1  2 3  13 1  1 1 1  1 2 1  1 3 1  1 5  1 5  1 5  1 5  1 7  1 7  1 7  1   | £ 2C  | * 1  | TYPE  N N N B B B B                         | CONNECTOR XLR. GUTPUT  L I S T   | P01 P01 P01 P01 P01 J04 J02 J01 J02 J03 J03 J07     | - 00   | 1.87C.714.81   |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LGUSB-02 MONIT-01  MONIT-02  OR-CMCLK  OR-MVCLK  CR-MVCLK   | COLOR 9 9 9 9 9                                  | 090  | 24  S [ ]   | 2 3  CG N  CG N  CELM PNI  2 3  2 3  13 1 1 1 1 1 1 1 1 1 1 1 5 5 1 5 1 2 5 1 5 1 5 1 5 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7  | \$20  | * 1  | TYPE  N N N B B B                           | CONNECTOR XLR. GUTPUT  L I S T   | P01 P01 P01 J04 J02 J01 J05 J06 J01 J07             | - 00   | ELEMENT NR   |
| LCUSB-TC  WILLIS  SIGNAL NAME LCUSB-O1 LGUSB-O2 HGNIT-O1  MGNIT-O2  OR-CMCLK  OR-MVCLK  CR-MVDIR  OR-SYENB  PRIMV-I  | 1.820<br>COLOR                                   | 090  | 24  S [ ]   | 2 3 G A UDGR A 2 3 13 1 15 1 1 1 11 1 13 5 50 1 1 1 1 1 13 5 12 5 13 5 12 5 13 5 1 5 12 5 13 5 1 5 1 5 1 5 1 5 1 5 1 7 2 11 3 21 2 7 3 13 2 11 3 11 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | £2C   | * 1  | TYPE  N N N B B B C B C C C C C C C C C C C | CONNECTOR XLR. OUTPUT  I S T   | P01 P01 P01 J04 J02 J01 J05 J06 J01 J07             | - 00   | 1.82C.714.81   |
| LCUSB-TC  WILLIS  SIGNAL NAME LCUSB-O1 LGUSB-O2 HGNIT-O1  MGNIT-O2  OR-CMCLK  OR-MVCLK  CR-MVDIR  OR-SYENB  PRIMV-I  | 1.820<br>COLOR                                   | 090  | 24  S I I I I I I I I I I I I I I I I I I  | 2 3  G A  CLM PNT  2 3  13 1 1 1 1 1 13 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1  | 570   | * 1  | N N N B B B Y Y                             | CONNECTOR XLR. GUTPUT  1 S T   | P01 P01 J04 J12 J01 J05 J01 J05 J07                 | - 00   | 1.82C.714.81<br>1.82C.714.81   |
| LCUSB-TC  WILLIS  LCUSB-O1  LCUSB-O1  LCUSB-O2  MONIT-O1  MONIT-O2  OR-CMCLK  OR-MVCLK  CR-MVDIR  OR-SYENB  PRIMV-I  PRIMV-Z   | 1.820<br>COLOR  9  9  9  9  1  1  1  1  1        | 090  | 24  S I I  | 2 3 3 4 4 5 L 1 1 1 1 1 1 1 3 5 5 0 1 1 1 5 1 2 1 2 3 2 3 2 3 1 3 1 1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1  | 5 5   | * 1  | TYPE  N N N B B B C B C C C C C C C C C C C | CONNECTOR XLR. OUTPUT  1 S T   | P01  P01  P01  J04  J12  J01  J01  J01  J07  J01  J07  J07  J07                         | - 00   | 1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>53.C3.C106   |
| LCUSB-TC  HILLIS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-92  OR-CMCLK  OR-MVCLK  CR-MVDIR  OR-SYENB  PRIMV-1  | 1.820<br>COLOR                                   | 090  | 24  S I I I I I I I I I I I I I I I I I I  | 2 3  G A  C C A  C C A  C C A  C C A  C C A  C C A  C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C A  C C C C   | 5 5   | * 1  | TYPE  N N N B B B C B C C C C C C C C C C C | CONNECTOR XLR. GUTPUT  1 S T   | P01  P01  P01  J04  J12  J01  J01  J01  J07  J01  J07  J07  J07                         | - 00   | 1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>53.C3.C106   |
| LCUSB-TC  WILLIS  LCUSB-O1  LCUSB-O1  LCUSB-O2  MONIT-O1  MONIT-O2  OR-CMCLK  OR-MVCLK  CR-MVDIR  OR-SYENB  PRIMV-I  PRIMV-Z   | 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9            | 090  | 24  \$ \$ [ ] \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ [ ] \$ \$ | 2 3  G   | \$ 2C | * 1  | TYPE  N N N B B B C B C C C C C C C C C C C | CONNECTOR XLR. GUTPUT  1 S T   | P01   | - 00   | 1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>55.12.0001<br>1.820.521.00<br>55.12.0001<br>55.12.0001<br>55.12.0001 |
| LCUSB-TC  WILLIS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-92  OR-CMCLK  OR-NVCLK  CR-NVDIR  GR-SYENB  PRIMV-1  PRIMV-2   | 1.820<br>COLOR 9 9 9 9 1 1 1 1 1 2 2 2 2 3 3 3 3 | 090  | 24  *******  S I   ******  S I   *****  S I   *****  S I   ****  S I   ****  S I   ****  S I   ****  ***   | 2 3 G K UOGR A 2 3 13 1 15 1 1 1 11 1 13 5 50 1 1 1 1 1 13 5 13 2 1 3 21 2 7 3 13 2 11 3 21 2 11 3 21 2 11 3 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | 520   | * 1  | APP DECK & AUDIO                            | CONNECTOR XLR. OUTPUT  I S T   | P01   | - 00   | 1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.521.00  1.82C.521.00  53.03.0106  55.12.0001  1.82C.521.00             |
| LCUSB-TC  WHILL IS  SIGNAL NAME LCUSB-01 LOUSG-02 MONIT-01  MONIT-02  OR-CMCLK  OR-NVCLK  CR-HVDIR  OR-SYENB  PRIMV-1  PRIMV-2   | 1.820<br>COLOR                                   | 090  | 24  S I I  | 2 3  G A  CUORN A  2 3  13 1 1  1 1 1  13 5  50 1  1 5  12 1  1 3 21  2 7  3 13  2 11  3 21  2 17  3 13  2 11  4 4  1 2 1  1 1 1  1 2 1  1 1 1  1 3 2 1  2 1 1  3 2 1  2 1 1  3 2 1  3 1 3  4 1 1  4 1 1  5 1 1  6 1 1  7 1 1  8 1 1  8 1 1  9 1 2  9 1 1  9 1 | 520   | * 1  | APE DECK & AUDIO                            | CONNECTOR XLR. GUTPUT  1 S T   | P01 P01 J04 J12 J01 J05 J06 J07                     | - 00   | 1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>1.82C.714.81<br>55.12.0001<br>1.820.521.00<br>55.12.0001<br>1.820.521.00             |

|   | • WILLI ST  | 1.820.          | 090  | 00 • S1               | UDER                  | A 8                      | 2C | ••••<br>• T |                       | • 83/0  | *****<br>2/23 -          | ******    | P A G E B1 •                                   |
|---|-------------|-----------------|------|-----------------------|-----------------------|--------------------------|----|-------------|-----------------------|---|--------------------------|-----------|--|
|   | SIGNAL NAME | COLOR           | M1   | ASY GRP               | ELM                   | PNT                      | 5  | L۷          | TYPE                  | DESCRIPTION OF ELEMENT  |                          | REMARK    | ELEMENT NR.                                    |
|   | PR [MH-1    | 0               | _    | 8                     | 1                     | 1 4                      | -  |             | Y                     | PRIMARY 1<br>PRIMARY 1  |                          |           | 1.820.521.C0<br>1.87C.521.C0                   |
|   | PRIMW-2     | 1 5 5 5 5 5 5 5 |      | 5<br>6<br>6<br>7<br>8 | 2<br>1<br>1<br>1<br>3 | 2<br>5A<br>5C<br>5D<br>1 | -  |             | L<br>K<br>K<br>K<br>J | FUSE HOLDER, OISTRIBUTOR DISTRIBUTOR OISTRIBUTOR VOLTAGE SELECTOR PRIMARY 1                     | F02                      |           | 53-03-0106<br>55-12-0001<br>1-870-571-00       |
|   | PRIMW-3     | 6 6 6 6         |      | 6<br>6<br>6<br>7<br>7 | 1<br>1<br>2<br>3      | 6A<br>6C<br>6D<br>2<br>2 | _  |             | 7<br>K<br>K           | OISTRIBUTOR OISTRIBUTOR DISTRIBUTOR VOLTAGE SELECTOR VOLTAGE SELECTOR PRIMARY 1                 | S02<br>S03               |           | 55-12-0001<br>55-12-0001<br>1-820-571-00       |
|   | PR1MW-5     | 7 7 7 7         |      | 6<br>6<br>6<br>7<br>7 | 1<br>1<br>1<br>2<br>3 | 7A<br>7C<br>7D<br>4      | -  |             | K<br>K<br>K<br>J<br>J | DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR VOLTAGE SELECTOR VOLTAGE SELECTOR PRIMARY 2                 | 502<br>503               |           | 55.12.0001<br>55.12.0001<br>1.820.522.00       |
|   | PRIMW-6     | 0               | _    | 8 8                   | 2 2                   | 6<br>7                   | _  |             | Y<br>Y                | PRIMARY 2<br>PRIMARY 2  |                          |           | 1.820.522.00                                   |
|   | PHMPL-H1    |                 |      | 20<br>20<br>33        | 1<br>40<br>2          | 9<br>28<br>9             | -  |             |                       | SPOCLING MOTOR ORIVE AMP. LEFT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMOI                    | POI<br>JOI<br>POL        |           | 1.820.759.00                                   |
|   | PHMPL-H2    |                 |      | 20<br>20<br>33        | 1<br>40<br>2          | 10<br>34<br>10           | _  |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>SPOOLING MOTOR ORIVER<br>FROM GRP20. ELMO1                    | P01<br>J01<br>P01        |           | 1.820.759.00                                   |
|   | PHMPL-L1    |                 |      | 20<br>20<br>33        | 40<br>2               | 7<br>35<br>7             | _  |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>SPOOLING MOTOR ORIVER<br>FROM GRP20. ELMOI                    | P01<br>J01<br>P01        |           | 1.820.755.00                                   |
|   | PWMPL-L2    |                 |      | 20<br>33              | 1<br>2                | 8<br>8<br>               | _  |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>FROM GRP20. ELMO1   | P01                      |           |  |
|   | PWMPL-L3    |                 |      | 20<br>20<br>33        | 40<br>2               | 11<br>29<br>11           |    |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>Spooling motor driver<br>From Grp20. Elmo1                    | P01<br>J01<br>P01        |           | 1.820.759.00                                   |
|   | PMMPL-L4    |                 |      | 20<br>20<br>33        | 40<br>2               | 12<br>33<br>12           | -  |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>Spooling motor driver<br>From Grp20, Elmol                    | P01<br>J01<br>P01        |           | 1.820.759.00                                   |
|   | PHMPL-L5    |                 |      | 20<br>20<br>33        | 40                    | 14<br>32<br>14           |    |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMO1                    | P01<br>J01<br>P01        |           | 1.820.759.00                                   |
|   | MILLI ST    | 1.820.          | 090. | ******                | UDER                  | ****                     | 2G | ••••        | APE DECK & AUDIO      |   | *****                    | ********* | P A G F 82 • • • • • • • • • • • • • • • • • • |
|   | PHMPL-L6    |                 |      | 20<br>20<br>33        | 1<br>40<br>2          | 15<br>31<br>15           | -  |             |                       | SPOOLING MOTOR DRIVE AMP. LEFT<br>SPDOLING MOTOR DRIVER<br>FROM GRP20. ELMO1                    | P01<br>J01<br>P01        |           | 1.820.755.00                                   |
|   | FWMPR-H1    |                 |      | 2 C<br>3 O            | 2                     |                          | _  |             |                       | SPOOLING MOTOR DRIVE AMP. RIGHT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMO2                   | JO1<br>PO1               |           | 1.820.759.00                                   |
|   | PEMPR-H2    |                 | -    | 20                    | 2<br>40<br>2          | 38                       | -  |             |                       | SPOCLING MOTOR ORIVE AMP. RIGHT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMO2                   | J01<br>P01               |           | 1.820.759.00                                   |
|   | PWMPR-L1    |                 |      | 2 C<br>3 O            | 2<br>40<br>2          | 39<br>7                  | -  |             |                       | SPOOLING MOTOR DRIVE AMP. RIGHT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMO2                   | JO1<br>POI               |           | 1.820.759.00                                   |
|   | PWMPR-L2    |                 |      | 20                    | 2 2                   | 8                        | _  |             |                       | SPOOLING MOTOR DRIVE AMP. RIGHT<br>FROM GRP20. ELMO2  | P02                      |           |  |
|   | PMMPR-L3    |                 |      | 2 C<br>3 O            | 2<br>40<br>2          | 8                        |    |             |                       | SPOCLING MOTOR DRIVE AMP. RIGHT<br>SPOOLING MOTOR ORIVER<br>FROM GRP20. FLMO2                   | P02<br>J01<br>P01        |           | 1.820.759.00                                   |
|   | PHMPR-L4    |                 | _    | 20<br>20<br>30        | 2<br>40<br>2          | 12<br>37<br>12           | _  |             |                       | SPOOLING MOTOR DRIVE AMP. RIGHT<br>SPOOLING MOTOR DRIVER<br>FROM GRP20. ELMO2                   | P02                      |           | 1.820.759.00                                   |
|   | PWMPR-L5    |                 |      | 20<br>20<br>30        | 2<br>40<br>2          | 14<br>36<br>14           |    |             |                       | SPOOLING MOTOR DRIVE AMP. RIGHT<br>SPODLING MOTOR DRIVER<br>FROM GRP20. ELMO2                   |                          |           | 1.820.759.00                                   |
|   | PMMPR-L6    |                 |      | 20<br>20              | 2<br>40<br>2          | 15<br>10                 |    |             |                       | SPOOLING MOTOR ORIVE AMP. RIGHT<br>SPOOLING MOTOR ORIVER<br>FROM GRP20. ELMO2                   | POZ<br>JOI<br>POI        |           | 1.870.759.00                                   |
|   | RCV-232     |                 |      | 20                    | 50                    | 9                        | _  |             |                       | SMPTE/EBU INTERFACE   |                          |           | 1.820.751.00                                   |
|   | RECEIVA     |                 |      | 20<br>25<br>25        | 31<br>50<br>4<br>5    | 6<br>8<br>8              |    |             | B<br>B                | TO GRP25. ELMO4/05<br>SMPTE/EBU INTERFACE<br>CONNECTOR SMPTE/EBU BUS<br>CONNECTOR SMPTE/EBU BUS | P21<br>J11<br>J04<br>J05 |           | 1.870.751.00                                   |
|   | RECEIVB     |                 |      | 20<br>25              | 31<br>50              | 5                        | _  |             | B<br>B                | TO GRP25, ELNO4/05<br>SMPTE/EBU INTERFACE<br>CONNECTOR SMPTE/EBU BUS<br>CONNECTOR SMPTE/EBU BUS | P21<br>J11<br>J04<br>J05 |           | 1.820.751.00                                   |
| ) | RECEIVCM    |                 |      | 20<br>25<br>25        | 5                     | 4                        |    |             | B<br>B                | TO GRP25. ELMO4/OS<br>SMPTE/EBU INTERFACE<br>CONNECTOR SMPTE/EBU BUS<br>CONNECTOR SMPTE/EBU BUS | P21<br>J11<br>J04<br>J05 |           | 1.820.751.00                                   |
|   | RECHH-TC    | 9               | -    | 21                    | 40<br>70              |                          | -  |             | U<br>B                | TIME CODE WRITE/READ UNIT<br>CONN. HEAD BLOCK ASSEMBLY  | J07<br>J18               |           | 1.820.721.81                                   |

| SIGNAL NAME  | COLOR                             | M1   | ASY GRI                                   | ELM   | PNT  | 5    | LV  | TYPE   | DESCRIPTION OF ELEMENT   |   | REMARK    | ELEMENT NR.   |
|--|-----------------------------------|------|---|---|--|------|-----|--|--|---|-----------|---|
| RECHH-01   | 9 9                               |      | 21<br>21<br>60                            | 43<br>70<br>1   | 10<br>5<br>5   | -    |     | U<br>B<br>A  | RECORD AMPLIFIER, CH 1<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLCCK CONNECTOR  | J10<br>J18<br>P01   |           | 1.820.712.81  |
| RECHH-02   | 9 9 1                             |      | 21<br>21<br>60                            | 48<br>70<br>1   | 10<br>24<br>24   | -    |     | U<br>B<br>A  | RECORD AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR  | J15<br>J18<br>P01   |           | 1.820.712.81  |
| RECHL-TC   | 6 6 3                             |      | 21<br>21<br>60                            | 40<br>70<br>1   | 8<br>14<br>14  | _    |     | U<br>B   | TIME CODE WRITE/READ UNIT<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLCCK CONNECTOR   | J07<br>J18<br>P01   |           | 1-820-721-81  |
| RECHL-01   | 6 6 0                             |      | 21<br>21<br>60                            | 43<br>70<br>1   | 9<br>6<br>6  | -    |     | U<br>B   | RECORD AMPLIFIER. CH 1<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLOCK CONNECTOR  | J10<br>J18<br>P01   |           | 1.820.712.81  |
| RECHL-02   | 6 6 0                             | _    | 21<br>21<br>60                            | 48<br>70  | 9<br>25<br>25  | -    |     | U<br>B   | RECORD AMPLIFIER, CH 2<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLCCK CONNECTOR  | J15<br>J18<br>P01   |           | 1.820.712.81  |
| REC IN-01  |                                   |      | 2 1<br>2 1<br>2 1                         | 43<br>45<br>46  | 1<br>8<br>15   | -    |     |  | RECORD AMPLIFIER. CH 1<br>LINE AMPLIFIER. CH 1<br>MOND-STEREO-SMITCH   | J10<br>J12<br>J13   |           | 1.82C.712.81<br>1.82C.714.81<br>1.87C.720.00                    |
| REC 1N-02  |                                   |      | 21<br>21<br>21                            | 46<br>48<br>50  | 13<br>1<br>8   | -    |     |  | MONO-STEREO-SWITCH<br>RECORD AMPLIFIER, CH 2<br>LINE AMPLIFIER, CH 2   | J13<br>J15<br>J17   |           | 1.82C.720.C0<br>1.820.712.81<br>1.820.714.81                    |
| REPHH-TC   | 9<br>9<br>5                       |      | 21<br>21<br>60                            | 40<br>70  | 1 C<br>31<br>31  | -    |     | U<br>B   | TIME CODE WRITE/REAC UNIT<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLCCK CONNECTOR   | J07<br>J18  |           | 1.820.721.81  |
| BCBHH-01   |                                   |      |   |   |  | -    |     | <u></u>  | REPRODUCE PREAMPLIFIER   |   |           |   |
| REPHH-01<br>REPHH-02   | 1                                 |      | 60  |   | 12   | -    |     | 1  | REPRODUCE PREAMPLIFIER   |   |           |   |
| REPHL-TC   | 6 6 3                             |      | 21<br>21<br>60                            | 40<br>70  | 11<br>13<br>13   | -    | -   | U  | TIME CODE WRITE/READ UNIT<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLOCK CONNECTOR   | J07<br>J18<br>P01   |           | 1.820.721.81  |
| 05000 01   | 3                                 |      |   |   |  | -    |     | :  | REPRODUCE PREAMPLIFIER   |   |           |   |
| PEPHL-01   |                                   |      | 6C  |   | -11  | -    |     |  | REPRODUCE PREAMPLIFIER   |   |           |   |
| REPHL-02<br>REPRE-01   | 9                                 |      | 60  |   |  | -    |     | U  | REPRODUCE AMPLIFIER, CH 1  | Jli   |           | 1.82(.710.81  |
| KEPKE-UI   | 3                                 |      | 21<br>21<br>60<br>60                      | 70<br>1<br>3  | 1 1 2  |      |     | B<br>A<br>L  | CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  | J18<br>P01  |           | 1.02(2710-01  |
| REPRE-02   | 9<br>0                            |      | 21<br>21<br>60                            | 49<br>70<br>1   | 20   | -    | -   | U<br>B   | REPRODUCE AMPLIFIER, CH 2<br>CONN. HEAD BLOCK ASSEMBLY<br>HEAD BLCCK CONNECTOR   | J16<br>J18<br>P01   |           | 1.876.710.81  |
| willi S  | ******                            | **** | 60<br>S                                   | ****  | ****   | **** | • 1 | M I R E  | DIC + 83/0   | 2/23 -  | - CC      | P A G E 84 •  |
| • WILLI S  | 1.820                             | 090  | <br>S                                     | I G   | N<br>A   | £2C  | • 1 | APE DECK & AL  | L I S I + 86/0   | 2/23 -  | ********* | ****************  |
| **********   | 1.820                             | 090  | S<br>••••••                               | I G   | N A A PNT  | £2C  | • 1 | APE DECK & AL  | DIC + 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 1 CONN. HEAD BLOCK ASSEMELY  | 2/23 -  | - CC      | ***************************************                         |
| SIGNAL NAME  | L.82C                             | 090  | S<br>OC • S<br>ASY GR                     | I G   | N N N N N N N N N N N N N N N N N N N  | £2¢  | • 1 | TYPE   | L I S I ** 86/0  DIC ** 8370  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 1  | 2/23 -  | - CC      | **************************************                          |
| SIGNAL NAME  | COLOR 6 6 6 6 6 6 6 5             | 090  | ASY GR 21 21 60 60                        | F ELP<br>44<br>70<br>1<br>3   | 7 2 2 3 7 21 21  | £2¢  | • 1 | TYPE U B   | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR  | 2/23 -  | - CC      | **************************************                          |
| SIGNAL NAME  | 1.82C.                            | 090  | ASY GR 21 21 60 60 -21 21 21              | TUDEF<br>F ELI<br>44<br>70<br>1<br>3<br>49<br>70<br>1<br>3            | 7 2 3 7 2 1 6 3 1  | £2¢  | • 1 | TYPE U B A L   | DIC + 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER   | J11<br>J18<br>P01<br>J16<br>J18   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME<br>REPRO-01  | 1.82C.                            | 090  | ASY GR 21 21 60 60 21 6 0 60              | P ELJ<br>444<br>700<br>1 3<br>499<br>700<br>1 3<br>1 1<br>1 1         | N N N N N N N N N N N N N N N N N N N  | £2¢  | • 1 | TYPE U B A L   | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER  POMER SHITCH LINE FILTER  POMER SHITCH LINE FILTER   | J11<br>J18<br>P01<br>J16<br>J18   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1 S-LINE2  | 1.82C                             | 090  | ASY GR 21 60 60 - 21 21 60 60 - 3 4 4 4 4 | 70 ELV<br>70 1 3 3 49 70 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1          | 7 21 21 6 3 1 2 2 16   | £2¢  | • 1 | TYPE U B A L   | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE TO PREAMPLIFIER  POMER SWITCH LINE FILTER  POMER SWITCH LINE FILTER  LINE FILTER LINE FILTER LINE FILTER LINE FILTER   | J11<br>J18<br>P01<br>J16<br>J18   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1  | 1.82C.  COLOR 6 6 6 6 7 1 1 0 6 0 | 090  | S S OC S S S S S S S S S S S S S S S S S  | P ELJ<br>444<br>700<br>1 3<br>499<br>700<br>1 3<br>1 1<br>1 1         | N N N N N N N N N N N N N N N N N N N  | £2¢  | • 1 | TYPE U B A L   | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER  POMER SHITCH LINE FILTER  POMER SHITCH LINE FILTER   | J11<br>J18<br>P01<br>J16<br>J18   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1 S-LINE2 S-MONNUT                                 | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 FF ELI<br>449 700 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1           | 7 21 21 6 3 1 2 1 6 5 1 A 5 1 A 8  | £2¢  | • 1 | TYPE U B A L   | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER  TO PHONES CONNECTOR  | J18 P01   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1 S-LINE2 S-MONNUT                                 | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 ELV<br>700 1 3 3 3 1 1 1 1 1 1 1 1 5 6 6 5 6                      | N N N N N N N N N N N N N N N N N N N  | £2¢  | • 1 | TYPE U B A L   | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLOCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMELY HEAD BLOCK ASSEMELY HEAD BLICK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR  | J11 J18 P01 J18 P01 J18 J18 J18 J18 J18 J18 J18 J18 J18 J1  | - CC      | FLEMENT NR.  1.820-710-81  1.92C-710-81                         |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1 S-LINE2  | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 ELJ<br>700 ELJ<br>700 1<br>3 3<br>1 1<br>1 1<br>1 1<br>1 1<br>1 1 | 7 22 3 3 1 2 1 6 5 1 A 8 9   | £2¢  | • 1 | TYPE  U B A L  L  U B A L  L  L  L  L  L  L  L  L  L  L  L  L  | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE TO PERAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER  TO PHONES CONNECTOR   | J18 P01   | - CC      | FLEMENT NR.  1.820.710.81                                       |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 FELM 44 47 70 1 3 3 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1               | 7 2 2 3 3 1 2 1 6 6 5 1 A 5 1 A 5 1 A 1 1 1 1 1 1 1 1 1 1 1  | £2¢  | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER   | J11 J18 P01 J16 P01 J02 J02 F01 F01   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81                         |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 EFL) 449 700 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1              | 7 2 2 3 7 7 2 1 2 1 6 5 1 A 5 1 A 5 1 A 1 1 1 1 1 1 1 1 1 1 1  | £2¢  | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DIC • 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCK CONNECTOR REPRODUCE AMPLIFIER. CM 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE AMPLIFIER. CM 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE TO PERAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR LINE FILTER  | J11 J18 P01 J16 P01 J02 J02 F01 F01   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81                         |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 EFL) 444 70 1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1               | 3 1 2 1 6 5 1 A 8 9 10 1 1 1 1 4 A 4 C 2 1   | \$ - | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE AMPLIFIER.  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHOMES CONNECTOR LINE FILTER LINE  | J11 J18 P01 J16 P01 J02 J02 F01 F01   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81                         |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 EF ELJ 3 3 3 499 700 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1          | 7 7 2 2 3 7 7 2 1 2 1 6 6 1 A 5 1 A 5 1 A 5 1 A 5 1 A 6 5 1 A 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6              | 5    | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER  TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR OF PHONES CONNECTOR PHONES CONNECTOR LINE FILTER LINE FI | J11 J18 P01 J16 P01 J02 J02 F01 F01   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81                         |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDER  44 70 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                    | 7 7 2 2 3 3 7 7 2 1 2 1 6 6 3 1 2 2 4 1 6 5 1 A 5 1 A 5 1 A 6 5 1 A 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6        | 5    | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLOCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMELY HEAD BLOCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHOMES CONNECTOR PHOMES CONNECTOR PHOMES CONNECTOR LINE FILTER LINE F | J11 J18 P01 J18 P01 J02 J02 F01 F02   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81  53.03.0106 53.03.0106  |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDER 70 1 3 49 70 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1              | 7 7 2 2 3 3 7 7 2 1 2 1 6 6 8 1 4 1 2 1 6 6 8 0 1 1 1 1 1 1 1 9 2 0 2 1 4 A 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  | 5    | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LIN | J11 J18 P01 J16 P01 J02 J02 F01 F01   | - CC      | FLEMENT NR.  1.870.710.81  1.92C.710.81  53.03.0106  53.03.0106 |
| SIGNAL NAME REPRO-01 REPRO-02 S-LINE1 S-LINE2 S-MONNUT                                 | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDES  44  70  1 3  49  70  1 1  1 1  1 1  1 1  1 1  1 1  1 1         | 7 2 2 3 3 2 1 2 1 6 6 3 1 2 2 1 6 6 5 1 A 8 9 10 1 1 1 1 9 20 21 4 4 4 4 4 4 4 4 4 4 6 4 8 4 8 6 6 8 8 6 6 6 6 | 5    | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DIC * 83/0  DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE AMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLCCK CONNECTOR REPRODUCE AMPLIFIER  POMER SWITCH LINE FILTER LINE  | J11 J18 P01 J18 P01 J02 J02 S01 F02 S01   | - CC      | FLEMENT NR.  1.820.710.81  1.92C.710.81  53.03.0106  55.12.0001 |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT  SF-LINE2                   | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDES  44  70  1 3  49  70  1 1  1 1  1 1  1 1  1 1  1 1  1 1         | 2 A A A A A A A A A A A A A A A A A A A  | 5    | • 1 | TYPE  U B A L  U B A  L  U B A  L  U B A | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER, CH 1 CONN. HEAD BLOCK ASSEMBLY HEAD BLCCK CONNECTOR REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE AMPLIFIER  REPRODUCE AMPLIFIER. CH 2 CONN. HEAD BLOCK ASSEMBLY HEAD BLICK CONNECTOR REPRODUCE TO PERAMPLIFIER  POMER SWITCH LINE FILTER  TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR LINE FILTER DISTRIBUTOR DISTRIBUTOR DISTRIBUTOR OISTRIBUTOR OULTAGE SELECTOR PRIMARY 2  | J11 J18 P01 J18 P01 J02 J02 S01 F02 S01   | - CC      | 53.03.0106<br>55.12.0001<br>55.12.0001<br>1.820.22.00           |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT  SF-LINE2  SHIELD           | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDE F ELJ  | 7 2 2 3 3 2 1 2 1 6 6 3 1 2 2 4 4 4 4 4 4 8 8 8 8 1 1  | 5    | • 1 | TYPE  U B A L  U B A            | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNE | J11 J18 P01 J18 P01 J02 J02 S01 S03 J01 P02 J01 J01 J01 S03 J01 J01 J01 J01 S03 J01 J01 J01 S03 J01 J01 J01 S03 J01 J01 S03 J01 J01 J01 J01 S03 J01 J01 S03 J01 J01 J01 J01 J01 J01 S03 J01 | - CC      | 53.03.0106<br>55.12.0001<br>55.12.0001<br>1.820.22.00           |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT  SF-LINE2  SHIELD  SIGN-GND | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | 700 FELL 444 70 1 3 3 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1                 | 7 7 2 2 3 3 7 7 1 2 1 6 6 8 9 9 10 1 1 1 1 9 20 4 4 4 8 8 8 8 6 6  | 5    | • 1 | TYPE  U B A L  J Y L  Y L  Y L  Y K K K K K K K K K K K  | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE PREAMPLIFIER. CH 2 CONN. HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SHITCH LINE FILTER LINE FIL | J11 J18 P01 J16 J18 P01 J02 J02 J02 J02 J02 J01 S03 J01 P02 J02 J01 P02 J01 P07   | - CC      | 53.03.0106<br>55.12.0001<br>1.820.522.00                        |
| SIGNAL NAME REPRO-01  REPRO-02  S-LINE1  S-LINE2  S-MONMUT                             | 1.82C                             | 090  | S S S S S S S S S S S S S S S S S S S     | TUDE F ELJ  | 7 7 2 2 3 3 7 7 1 2 1 6 6 8 1 1 1 1 9 2 0 2 1 4 4 4 4 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8                          | 5    | • 1 | TYPE  U B A L  J Y L  Y L  Y L  Y K K K K K K K K K K K  | DESCRIPTION OF ELEMENT  REPRODUCE AMPLIFIER. CH 1 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  REPRODUCE AMPLIFIER, CH 2 CONN. HEAD BLOCK ASSEMELY HEAD BLCCK CONNECTOR REPRODUCE PREAMPLIFIER  POMER SWITCH LINE FILTER LINE FILTER LINE FILTER LINE FILTER TO PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNECTOR PHONES CONNECTOR ON TO PHONES CONNECTOR PHONES CONNE | J11 J18 P01 J18 P01 J02 J02 S01 S03 J01 P02 J01 J01 J01 S03 J01 J01 J01 J01 S03 J01 J01 J01 S03 J01 J01 J01 S03 J01 J01 S03 J01 J01 J01 J01 S03 J01 J01 S03 J01 J01 J01 J01 J01 J01 S03 J01 | - CC      | 53.03.0106<br>55.12.0001<br>55.12.0001<br>1.820.22.00           |

| SIGNAL NAME  | COLOR   |      | ASY GR  |   |  |       | LV  | TYPE                                     |                          | DESCRIPTION OF ELEMENT  |   | REMARK          | ELEMENI NR.   |
|--|---------|------|---|---|--|-------|-----|--|--------------------------|---|---|-----------------|---|
| SR-FADRY   |         |      | 25  | 3   | 6  | -     |     | 8  |                          | CONN. PARALLEL REMOTE CONTROL TO CONN. PARALLEL REMOTE CONTROL  | J03   |                 |   |
| SR-FORW  |         |      | 25<br>25<br>27<br>27  | 2 3 3   | 21<br>21   | -     | _   | 8 8                                      |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
| SR-LIFT  |         |      | 25<br>25<br>27<br>27  | 3   |  | -     |     | 8  |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   | ******          |   |
| SR-LOCST   |         | -    | 25<br>27  |   | 18   |       |     | В  |                          | CONN. PARALLEL REMOTE CONTRCL<br>TO CONN. PARALLEL REMOTE CONTR   | J03   |                 |   |
| SR-MUTE  |         |      | 25<br>27  |   | 18   | -     |     | 8  |                          | CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER  | J02<br>P03  |                 |   |
| SR-PLAY  |         |      | 25<br>25<br>27<br>27  | 3   | 22<br>22<br>18<br>18   | _     |     | B<br>B                                   |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
| SR-REC   |         |      | 25<br>25<br>27<br>27  | 3   | 19   | -     |     | B<br>B                                   |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
| SR-REHSL   |         |      | 25<br>27  |   | 6  | _     |     | В  |                          | CONNECTOR SYNCHRONIZER TO CONNECTOR SYNCHRONIZER  | J07<br>P03  |                 |   |
| SR-RESET   |         |      | 25<br>27  | 3   | 10   | -     |     | 8  |                          | CONN. PARALLEL REMOTE CONTRCL<br>TO CONN. PARALLEL REMOTE CONTR   | J03   |                 |   |
| SR-REW   |         | -    | 25<br>25<br>27<br>27  |   | 2C<br>20<br>14<br>14   | -     |     | B<br>B                                   |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
| SR-STOP  |         |      | 25<br>25<br>27<br>27  | 3   | 23<br>23<br>20<br>20   | -     |     | B<br>B                                   |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
| SR-VRSPD   |         |      | 25<br>25<br>27<br>27  | 2<br>3<br>3<br>4  | 5<br>5<br>9  | -     |     | B<br>B                                   |                          | CONNECTOR SYNCHRONIZER CONN. PARALLEL REMOTE CONTROL TO CONNECTOR SYNCHRONIZER TO CONN. PARALLEL REMOTE CONTR   | J02<br>J03<br>P03   |                 |   |
|  |         | -    | 36  | 3   | 14   | -     |     | В  |                          | CONN. PARALLEL REMOTE CONTROL   | J03   |                 |   |
| SR-OL CC   |         |      | 25<br>27  | 4   | 2  |       |     |  |                          | TO CONN. PARALLEL REMOTE CONTR  |   |                 |   |
| SYNHH-01   | TUDER A |      | 21<br>21<br>21<br>S   | 43<br>44  | 13<br>13<br>13   | L     |     |  | €                        | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1 L I S T • 66.   | J10<br>J11  |                 | PAGE 86 •   |
| SYNHH-01   | TUDER A | 090. | 21<br>21<br>21<br>  | 43<br>44<br>••****<br>I G   | 2<br>13<br>13<br>N<br>N  | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD APPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1 L I S T • 66  | J10<br>J11<br>  | • 11:48<br>• 00 | 1.82 C.710.81   |
| SYNHH-O1   | 1.820   | 090. | 27<br>21<br>21<br>  | 43<br>44<br>•••**:<br>I G<br>••••*:<br>TUOE:  | 13<br>13<br>13<br>N A  | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECGRO AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | J10<br>J11<br>J11<br>V05/14<br>V02/23   | - 11:48<br>- 00 | 1.82C.710.81  PAGE 86  PAGE 86  FLEMFNI NR.  1.820.712.81   |
| SYNHH-O1   | 1.820   | 090. | 27<br>21<br>21<br>21<br>3<br>3<br>4<br>5<br>4<br>5<br>4<br>5<br>4<br>5<br>4<br>5<br>4<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7<br>7  | 43<br>44<br>•••••<br>I G<br>••••<br>TUOE<br>••••<br>48<br>49                                  | 2<br>13<br>13<br>13<br>  | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECGRO AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  L I S T  | J10 J11 1005/14 102/23 J15 J16  | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.82C.712.81  1.82C.71C.81   |
| SYNHH-O1  MILLI S  SIGNAL NAME SYNHH-O2  | 1.820   | 090. | 27<br>21<br>21<br>21<br>3<br>3<br>4<br>5<br>5<br>6<br>6<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8<br>7<br>8   | 43<br>44<br>1 G<br>***********************************  | 2<br>13<br>13<br>13<br>N N<br>N N<br>N N<br>N N<br>N N<br>N N<br>N N<br>N N<br>N N<br>N  | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECORD AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  1 S T  | P04  J10  J11  *******  ******  *****  J15  J16  J11  J17   | - 11:48<br>- 00 | FLEMENT NR.  1.82C.712.81  1.82C.712.81  1.82C.712.81  1.82C.712.81   |
| SYNHH-O1  WILLI S  SIGNAL NAME  SYNHH-O2  SYNHH-O2   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 43<br>44<br>1 G<br>***********************************  | 2<br>13<br>13<br>13<br>N A<br>R A B<br>PNT<br>13<br>13<br>12<br>12<br>12   | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECGRO AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  L I S T  | J10 J11 J11 J11 J11 J11 J11 J16 J11 J10 J11   | - 11:48<br>- 00 | 1.82C.71C.81  P A G F 86  P A G F 86  FLEMENT NR.  1.82C.71C.81  1.82C.71C.81  1.82C.71C.81   |
| SYNHH-01  SYNHH-02  SYNHH-02  SYNHH-02   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 43<br>44<br>00********************************  | 2<br>13<br>13<br>13<br>N A<br>R A B<br>PNT<br>13<br>13<br>12<br>12<br>12   | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  1 S T  | J10<br>J11<br>J11<br>J15<br>J16<br>J10<br>J11<br>J10<br>J11<br>J15  | - 11:48<br>- 00 | 1.82C.710.81  P A G E R6  P A G E R6  FLEMENT NR.  1.82C.71C.81  1.82C.71C.81  1.82C.71C.81  1.82C.71C.81   |
| SYNHH-O1  MILLI S  SIGNAL NAME  SYNHH-O2  SYNHL-O2  SYPRE-O1   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 43<br>44<br>44<br>1 G<br>***********************************                                  | 2<br>13<br>13<br>13<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N                                 | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECGRO AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S Y  | J10<br>J11<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>205/14<br>2 | - 11:48<br>- 00 | 1.82C.710.81  PAGE 86  PAGE 86  FLEMENT NR.  1.870.712.81 1.82C.71C.81  1.82C.71C.81  1.82C.710.81  1.82C.710.81  |
| SYNHH-O1  MILLI S  MILLI S  SIGNAL NAME  SYNHH-O2  SYNHL-O1  SYPRE-O1  SYPRE-D2  SYS-CTS   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 21 22 20 20  | 43 44 44 49 30 48 30  | 2<br>13<br>13<br>13<br>N M PNT<br>13<br>13<br>12<br>12<br>12<br>12<br>13<br>13<br>3<br>3<br>13B                                | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  1 S T  | J10 J11   | - 11:48<br>- 00 | 1.82C.710.81  PAGE 86  PAGE 86  FLEMENT NR.  1.870.712.81 1.82C.71C.81  1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81                   |
| SYNHH-01  MILLIS  SIGNAL NAME SYNHH-02  SYNHL-01  SYNHL-02  SYPRE-01  SYPRE-01  SYPRE-02  SYS-CTS  | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 22 22 22   | 43 44  ******  *****  *****  P ELL  48 49 43 44 49 44 49 30 48 30 48                          | 2<br>13<br>13<br>13<br>N M PNT<br>13<br>13<br>12<br>12<br>12<br>12<br>13<br>13<br>3<br>3<br>13B                                | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | J10 J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F 86  P A G F 86  FLEMENT NR.  1.870.712.81 1.82C.71C.81  1.82C.71C.81  1.82C.710.81  1.82C.710.81  1.82C.710.81  1.82C.710.81  1.82C.710.81        |
| SYNHH-01  MILLI S  MILLI S  SIGNAL NAME  SYNHH-02  SYNHL-02  SYPRE-01  SYPRE-02  SYS-CIS  SYS-DIR  | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 20 20 20 20 20   | 43<br>44<br>1 G<br>1 G<br>1 TUGE<br>1 H<br>48<br>49<br>43<br>44<br>49<br>30<br>48<br>30<br>48 | 2 13 13 13 13 13 13 13 13 13 13 13 13 13   | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  DESCRIPTION OF ELEMENT RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 1 RECORD AMPLIFIER. CH 1 RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 SOA INT. SYNCHRONIZER MASTER SERIAL INTERFACE SSDA INT. SYNCHRONIZER MASTER SFRIAL INTERFACE SSDA INT. SYNCHRONIZER  | J10 J11   | - 11:48<br>- 00 | 1.82C.71C.81  PAGE 86  PAGE 86  FLEMFNI NR.  1.870.712.81 1.82C.71C.81  1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81                                |
| SYNHH-O1  MILLI S  MILLI S  SIGNAL NAME  SYNHH-O2  SYPRE-O1  SYPRE-O2  SYPRE-D2  SYS-CIS  SYS-DIR  SYS-RX  | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20  | 43 44 44 49 44 49 30 48 30 48 11  | 2<br>13<br>13<br>13<br>13<br>N M PNT<br>13<br>13<br>12<br>12<br>12<br>12<br>13<br>3<br>3<br>13B                                | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD APPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | - P04 - J10 - J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-O1  MILLI S  MILLI S  SIGNAL NAME  SYNHH-O2  SYNHL-O1  SYPRE-O1  SYPRE-D2  SYS-C1S  SYS-C1S  SYS-C1S   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20  | 43 44  *****  I G G  ****  ***  ***  ***  ***   | 2 13 13 13 13 13 13 13 13 13 13 13 13 13   | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | - P04   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01  . WILLI S  | 1.820   | 090. | 27 21 21 21 21 21 21 21 22 20 20 20 20 20 20 26 27 27 26 27 | 43 444  ********************************  | 2 13 13 13 13 13 13 13 13 13 13 13 13 13   | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  B  | - P04 - J10 - J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01  SIGNAL NAME SYNHL-02  SYNHL-02  SYPRE-01  SYPRE-02  SYS-CIS  SYS-CIS  SYS-CIS  T-A0  T-A1  | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 20 20 20 20 20 20 26 27 27 26 27 | 43 44 49 49 300 48 300 48 11 11 11 11 11 11 11 11 11 11 11 11 11                              | 2<br>13<br>13<br>13<br>13<br>N M PNT<br>13<br>13<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12                   | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECORD AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  B  | J10 J11 J16 J16 J16 J17 J16 J17 J16 J17 J16 J17   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-O1  MILLI S  MI | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20  | 43 44 49 49 44 49 300 48 31 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                               | 2 13 13 13 13 13 13 13 13 13 13 13 13 13   | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | - P04 - J10 - J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01  WILLIS  SIGNAL NAME SYNHL-02  SYNHL-02  SYNHL-02  SYNHL-02  SYPRE-01  SYPRE-02  SYS-C1S  SYS-C1S  SYS-C1S  T-A1  T-A2  I-A3  | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 43 44 43 44 48 49 44 49 40 48 30 48 31 11 11 11 11 11 11 11 11 11 11                          | 2<br>13<br>13<br>13<br>13<br>N M PNT<br>13<br>13<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12 | E 2 C | • 1 | essesses<br>W [ R<br>seesess<br>APE DECK | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  1 S T   | - P04 - J10 - J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01   | 1.820   | 090. | 27 21 21 21 21 21 21 21 22 20 20 20 20 20 20 20 20 20 20 20 20  | 43 444  *****  P ELL  48 49  444  49  300 48  310 48  11 11 11 11 11 11 11 11 11 11 11 11 1   | 2 13 13 13 13 13 12 12 12 12 12 12 12 12 12 12 12 12 12  | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECORD AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  BY CONN.  BY | P04 J10 J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01  SIGNAL NAME SYNHH-02  SYNHL-02  SYPRE-01  SYPRE-02  SYS-CIS  SYS-CIS  T-A0  T-A1  T-A2  T-B0  T-B0   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 43 44 49 44 49 300 48 300 48 11 11 11 11 11 11 11 11 11 11 11 11 11                           | 2 13 13 13 13 13 13 13 13 13 13 13 13 13   | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  L I S T  | - P04 - J10 - J11 - J10 - J11 - J16 - J16 - J16 - J16 - J16 - J17 - J16 - J17   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |
| SYNHH-01   | 1.820   | 090. | 27 21 21 21 21 21 21 21 21 21 21 21 21 21   | 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4   | 2<br>13<br>13<br>13<br>13<br>13<br>13<br>13<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12<br>12                        | E 2 C | • 1 | w E R                                    | 6<br>••••••••<br>8 AUD10 | TO CONN. PARALLEL REMOTE CONTR  RECGRO AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1  BY CONN. PARALLEL REMOTE CONTR  L I S T CEC.  BY CONN. PARALLEL REMOTE CH 1  BECORD AMPLIFIER. CH 2  RECGRO AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 1  RECGRO AMPLIFIER. CH 1  RECGRO AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 2  SOA INT. SYNCHRONIZER  MASTER SERIAL INTERFACE  SSDA INT. SYNCHRONIZER  MASTER SERIAL INTERFACE  FROM GRP27. ELMO1  TO GRP26. ELMO1  FROM GRP27. ELMO1  FROM GRP27. ELMO1  TO GRP26. ELMO1  FROM GRP27. ELMO1  TO GRP26. ELMO1  FROM GRP27. ELMO1  TO GRP26. ELMO1  FROM GRP27. ELMO1  FROM GRP27. ELMO1  TO GRP26. ELMO1  | - P04 - J10 - J11   | - 11:48<br>- 00 | 1.82C.710.81  P A G F R6  P A G F R6  FLEMENT NR.  1.870.712.81 1.82C.71C.81 1.82C.71C.81 1.82C.71C.81 1.82C.710.81 1.82C.710.81 1.82C.710.81 1.82C.753.C0 1.820.753.C0 |

| SIGNAL NAME                                | COLOR           | MI   | ASY GRP   | ELM   | PNT  | S    | LV   | TYPE  | DESCRIPTION OF ELEMENT  |   | REMARK    | ELEMENT NR.  |
|--|-----------------|------|---|---|--|------|------|---|---|---|-----------|--|
| << CONT.OF<br>T-OT-CHI                     |                 | _    | 28<br>70<br>70<br>70<br>70                          | 2 1 2 5 7   | 12<br>12<br>12<br>12<br>12   | -    |      |   | FROM GRP2O. ELM19 FROM GRP2O. ELM18 RESERVF COMMANDS CH 01 COMMANDS MONITOR AMPLIFIER   | P01<br>P01<br>P02<br>P05<br>P07   |           |  |
| T-0T-CH2                                   |                 | -    | 2C<br>2C<br>20<br>28<br>70<br>70<br>70              | 19<br>51<br>2<br>1<br>2<br>6  | 4 A<br>1 3   | -    | -    |   | FROM GRP7O, ELMO?  VU-METER PANEL, EXTERNAL SOURCE SELECTOR MASTER PERIPHERY CONTROLLER FROM GRP2O, ELMI9 FROM GRP2O, ELMI8 RESERVE COMMANDS CH OZ COMMANDS MONITOR AMPLIFIER FROM GRP7O, FLMO?                 | P18<br>P19<br>J12<br>P01<br>P01<br>P02<br>P06<br>P07  |           | 1 - 870 - 72 8 - 00  |
| I-DI-CH3                                   |                 |      | 20<br>20<br>20<br>28<br>70<br>70<br>70<br>70        | 51<br>2<br>1<br>2   | 14<br>48<br>14<br>14<br>14<br>12   | -    |      |   | VU-METER PANEL, EXTERNAL SOURCE SELECTOR MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM19 FROM GRP2O. ELM18 RESERVE COMMANOS CH 03 COMMANOS MONITOR AMPLIFIER FROM GRP7O. ELM07                                    | P18<br>P19<br>J12<br>P01<br>P01<br>P02<br>P04<br>P07  |           | 1-820-778-00   |
| I-DI-MP                                    |                 | _    | 20<br>20<br>20<br>20<br>28<br>60<br>70<br>70<br>70  | 18  | 15<br>15<br>15<br>15<br>8<br>15<br>15<br>15<br>15<br>15<br>15  |      |      |   | TO HEAD BLOCK ASSEMPLY VU-METER PANELS. EXTERNAL SOURCE SELECTOR MASTER PERIPHERY CONTROLLER FROM GRP20. ELM19 FROM GRP20. ELM19 FROM GRP20. ELM18 RESERVE RESERVE COMMANDS MONITOR AMPLIFIER FROM GRP70. ELM07 | P17<br>P18<br>P19<br>J12<br>P01<br>P02<br>P01<br>P02<br>P03<br>P07  |           | 1.820.778.00   |
| I-DI-RES                                   |                 |      | 2C<br>20<br>20<br>20<br>6C<br>7C<br>70              | 51<br>2<br>1  | 16   |      |      |   | TO HEAD BLOCK ASSEMBLY VU-METER PANEL, EXTERNAL SOURCE SELECTOR MASTER PERIPHERY CONTROLLER FROM GRP2O, ELMI7 FROM GRP2O, ELMI8 RESERVE   | P17<br>P18<br>P19<br>J12<br>P02<br>P01<br>P02   |           | 1.820.728.00   |
| T-0T-RP1                                   |                 |      | 20<br>20<br>60                                      |   | 5B<br>19   |      | -    | 2   | TO HEAD BLOCK ASSEMBLY MASTER PFRIPHERY CONTROLLER FROM GRP20. ELMI7  | P17<br>J17<br>P02   |           | 1.820.728.00   |
|  |                 |      |   |   |  | -    |      |   | TO HEAD BLOCK ASSEMBLY  | P17   |           |  |
| I-DI-RP2                                   | ******          | **** | 20<br>60<br>  | ***   | 6A<br>7  | **** | **** |   | MASTER PERIPHERY CONTROLLER FROM GRP20, ELM17   | J12<br>P02  | ********  | 1.82C.728.C0   |
| • HILL 5 5                                 | 1.820.          | C90. | 20<br>60<br>5 I                                     | 51<br>2<br>   | 6A<br>7  | £ 2C | • T  | APE DECK & A  | HASTER PERIPHENY CONTROLLER FROM GRP20. ELM17  L I S T * 86/  | J12<br>P02<br>'05/14  | * 11:48 * | PAGF 88 •  |
| • HILL S                                   | 1.820.          | C90. | 20<br>60<br>**********************************      | 51<br>2<br>   | 6A 7 7   | £ 2C | • T  | APE DECK & A  | MASTER PERIPHERY CONTROLLER FROM GRP20, ELM17  L 1 S 1 * 86/  | J12<br>P02<br>05/14<br>02/23 -  | 11:48     | PAGF 88 • ••••••••••••••••• •••••••••••••••  |
|  | 1.820.          | C90. | 20<br>60<br>S I<br>00 • ST<br>ASY GRP               | 51<br>2<br>   | 6A<br>7<br>N<br>N<br>A<br>PNT<br>14<br>78<br>20  | £ 2C | • T  | APE DECK & A  | L I S T * 86/  BUILD BESCRIPTION OF ELEMENT  TO HEAD BLOCK ASSEMBLY MASTER PERIPHERY CONTROLLER  FROM GRP20. ELMI7  ***********************************   | J12<br>P02<br>  | 11:48     | ••••••••••••   |
| HILL ST                                    | 1.820.          | C90. | 26<br>60<br>5 I S I S I S I S I S I S I S I S I S I | 51<br>2<br>   | 6A<br>7<br>N<br>N<br>A<br>PNT<br>14<br>78<br>20  | £ 2C | • T  | APE DECK & A  | DESCRIPTION OF ELEMENT TO HEAD BLOCK ASSEMBLY MASTER PERIPHERY CONTROLLER FROM GRP20. ELM17   | J12<br>P02<br>P05/14<br>P17<br>J12<br>P02   | 11:48     | PAGF 88 • •••••••••••••••••• ••••••••••••••  |
| MILLI SI                                   | 1.82C.<br>COLOR | C90. | 20 60 S I   | 51<br>2<br>   | 6A<br>77<br>14 73 20<br>20 20 7 7 14 14 7 7 7 7 10 10 10 10 10 10 10 10 10 10 10 10 10               | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM17  L I S I * 86/ ************************************   | P17 J12 P01 J01 J01 J01 J01 J01 J01 J01 J01 J01 J   | 11:48     | PAGF88 •  **********************************   |
| SIGNAL NAME T-DT-SJM T-CE T-PWRCN          | 1.82C.<br>COLOR | C90. | 20  | 51<br>2<br>***** G<br>***** ELM<br>17<br>51<br>12<br>46<br>49<br>26<br>70<br>12<br>32<br>17<br>18<br>19<br>19<br>19<br>20<br>10<br>20<br>21<br>21<br>22<br>21<br>22<br>21<br>22<br>21<br>22<br>21<br>22<br>21<br>22<br>22 | 6A<br>7<br>****** N  | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM17  L I S I * 86/ ************************************   | J12<br>P02<br>05/14<br>************************************   | 11:48     | FLFMFNT NR   |
| SIGNAL NAME T-DT-SJM T-CE T-PWRCN          | 1.82C.<br>COLOR | C90. | 20 60 S I S I S I S I S I S I S I S I S I S         | 51<br>2<br>*****<br>****<br>****<br>****<br>***<br>***<br>***<br>***  | 6A<br>7<br>*****  N N ****  PNT 114  720  20  20  7  7  14  14  7  7  10  10  10  10  10  10  10  10 | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM17  L I S I * 86/ ************************************   | P17 J12 P01 P01 J01 P02 P01 P02 P03 P04 P05 P06 P07 P01 J02 P07 P01 P02 P07   | 11:48     | PAGF88 • ••••••••••  PAGF88 • •••••••••••  FLFMFNT NR.  1.820.728.00  1.820.784.00  1.820.784.00 |
| SIGNAL NAME T-DT-SJM T-CE T-PWRCN T-REFEXT | 1.82C.<br>COLOR | C90. | 20 60 S I   | 51<br>2<br>*****<br>****<br>****<br>****<br>***<br>***<br>***<br>***  | 6AA 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM17  L I S I * 86/ ************************************   | J12 P02 P01 P17 J12 P01 P01 J01 P01 J01 P01 J07 P02 P01 P01 P02 P01 P02 P01 P02 P01 P02 P01 P02 P03 P04 P05 P06 P07 P01 P02 P03 | 11:48     | PAGF88 • ••••••••••  PAGF88 • ••••••••••  FLFMFNT NR.  1.820.728.00  1.820.784.00  1.820.728.00  |
| T-REFERT T-RESET                           | 1.82C.<br>COLOR | C90. | 20 60 S II  | 51<br>2<br>**** G.<br>**** ELM<br>17<br>51<br>2<br>469<br>47<br>70<br>12<br>3<br>3<br>2<br>17<br>18<br>18<br>19<br>51<br>2<br>2<br>11<br>2<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1          | 6AA 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7  | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELMI7  L I S I * 86/  ***********************************   | J12 P02  ******* 05/14  ****** 05/14  ******  P17 J12 P02 P01 J01 J01 J01 J01 J01 J01 J01 J01 J01 J   | 11:48     | PAGF88 • ••••••••••  PAGF88 • ••••••••••  FLFMFNT NR.  1.820.728.00  1.820.784.00  1.820.728.00  |
| T-REFENT                                   | 1.82C.<br>COLOR | C90. | 20 60 S I S I S I S I S I S I S I S I S I S         | 51<br>2<br>   | 6A 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8   | £ 2C | • T  | TYPE  F M F F M F F F F M F F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F F M F M F F M F F M F F M F M F F M F M F F M F M F F M F M F F M R M F M R M R | MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM17  L I S I * 86/ ************************************   | J12 P02 P01 P17 J12 P01 P01 J01 P01 J01 P01 J07 P18 P19 P02 P02 P03 P04 P05 P06 P07 P01 P02 P03 P04 P05 P06 P07 P01 P06 P07 P07 P08 P09 P07 P08 P09 P08 P09   | 11:48     | PAGF88 • ••••••••••  PAGF88 • ••••••••••  FLFMFNT NR.  1.820.728.00  1.820.784.00  1.820.728.00  |

| SIGNAL NAME   | COLOR   | MI   | ASY GRP  | ELM PI  | (T :                                    | S LV                                       | TY       | YPE    | DESCRIPTION OF ELEMENT  |  | REMARK        | ELEMENT MR.                           |
|---|---------|------|--|---|---|--|----------|--------|---|--|---------------|---------------------------------------|
| T-RL3   |         |      | 26<br>27   | 1 2   |   |  |          |        | FROM GRP27. ELMO1<br>TO GRP26. ELMO1  | POI  |               |                                       |
| T-RL4   |         |      | 26<br>27   | 1 23  | 3                                       |  | _        |        | FROM GRP27. ELMOI<br>TO GRP26. ELMOI  | P01  |               |                                       |
| T-RL5   |         |      | 26   |   |   |  | -        |        | FROM GRP27. ELMC1<br>TO GRP26. ELMO1  | P01  |               |                                       |
| I-RL6   |         |      |  |   | <br>I                                   |  |          |        | FROM GRP27, ELMOI<br>TO GRP26, ELMOI  | P01  |               |                                       |
| -RL7  |         | -    | 26<br>27   | 1 18  | <br>I                                   |  |          |        | FRCM GRP27, ELMOI<br>TO GRP26, ELMOI  | P01<br>P01   |               |                                       |
| -SAOA   |         |      | 20<br>20<br>20<br>28<br>60<br>70<br>70<br>70<br>70   | 17 7 18 7 19 7 51 17 2 4 1 7 2 7 3 7 4 7 5 7 6 7 6 7 7          | A                                       |  |          |        | TO MEAD BLOCK ASSEMBLY VU-METER PANEL, EXTERNAL SOURCE SELECTOR MASTER PERIPHERY CONTROLLER FROM GRP2O, ELM19 FROM GRP2O, ELM17 FROM GRP2O, ELM18 RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 02  | P17<br>P18<br>P19<br>J12<br>P01<br>P02<br>P01<br>P03<br>P04<br>P05                             |               | 1.820.728.0                           |
|   |         | _    | 70<br>71<br>20<br>20<br>20<br>28<br>60<br>70<br>70<br>70<br>70<br>70   | 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7                           | В                                       | _  |          |        | COMMANDS MONITOR AMPLIFIER FROM GRP70. FLMO7  TO HEAD BLOCK ASSEMBLY VU—METER PANEL. EXTERNAL SOURCE SELECTOR MASTER PERTPHERY CONTROLLER FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18 RESERVE RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS MONITOR AMPLIFIER  | P07<br>P17<br>P18<br>P19<br>J12<br>P01<br>P02<br>P01<br>P02<br>P03<br>P04<br>P05<br>P06<br>P07 |               | 1-820-728-0                           |
| - SADC  |         | -    | 2C<br>20<br>20   |   | Α                                       |  |          |        | FROM GRP70. ELM07  TO HEAD BLOCK ASSEMBLY VU-METER PANEL. EXTERNAL SOURCE SELECTIR MASTER PERIPHERY CONTROLLER FROM GRP20. ELM19 FROM GRP20. ELM17  | P17<br>P18<br>P19<br>J12<br>P01  |               | 1.870.778.0                           |
| ••••••  | ******* | •••• | 70<br>70<br>70<br>70   | 1 9<br>2 9<br>3 9<br>4 9  |   | ••••                                       | • • • •  | •••••• | FROM GRP2O. ELM18 RESERVE RESERVE COMMANOS CH 03  |  |               | *************                         |
| WILLI ST  | 1.820.  | 090. | 70<br>70<br>70<br>70<br>70   | 1 9 2 9 3 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1               | A  <br>                                 | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANDS CH 03  L I S T   | P02<br>P03<br>P04  | 11:48 4<br>00 | PAGE SC                               |
| WILL! ST  | 1.820.  | 090. | 70<br>70<br>70<br>70<br>8 I  | 1 9 2 9 3 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1               | A  <br>                                 | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANDS CH 03  L I S T   | P02<br>P03<br>P04  | 00            | P A G E SC                            |
| GNAL NAME   | 1.820.  | 090. | 70<br>70<br>70<br>70<br>70<br>8 I<br>8 I<br>9 S TU<br>8 S TU<br>8 S TU<br>9 S TU<br>9 TO<br>70<br>70<br>70<br>71   | 1 9 9 3 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                 | A  <br>                                 | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04  | 00            | P A G E SC                            |
| GNAL NAME  CONT.CF SADC   | 1.820.  | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>8 I I<br>80 • STU<br>ASY GRP<br>70<br>70<br>70<br>71<br>26<br>27   | 1 9 9 4 9 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1                         | 8 2C                                    | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANDS CH 03  L I S T   | P02<br>P03<br>P04<br>***********************************                                       | 00            | P A G E SC                            |
| GNAL NAME  CONT.CF SADC   | 1.820.  | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>8 S II<br>8 S Y GRP<br>70<br>70<br>70<br>71<br>26<br>27<br>26  | 1 9 9 3 9 4 9 9 4 9 9 1 1 16 1 17 1 17 1 21                     | 8 2C                                    | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T * 06/0  DIO * 83/0  DESCRIPTION OF ELEMENT  COMMANOS CH 01 COMMANOS CH 02 COMMANOS CH 02 COMMANOS CH 02 COMMANOS CH 02 COMMANOS CH 03 FROM GRP70* ELMO7  FROM GRP27* ELMO1 TO GRP26* ELMO1  | P02<br>P03<br>P04  | 00            | P A G E SC                            |
| GNAL NAME  CONT.CF SADC   | 1.820.  | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>8 S I<br>800 • STU<br>************************************   | 1 9 9 3 9 3 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1             | 8 2C                                    | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04<br>***********************************                                       | 00            | P A G E SC                            |
| GNAL NAME  CONT.CF SADC  SL1  SL2  SPDSL1                             | COLOR   | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>00 • STU<br>************************************   | 1 9 9 9 3 9 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1               | 8 1 S                                   | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04<br>***********************************                                       | 00            | P A G E SC                            |
| GNAL NAME  CONT.CF  SLO  SL1  SL2  SPOSL1  SPOSL2                     | COLOR   | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>00 • STU<br>************************************   | 1 9 9 9 3 9 9 4 9 9 4 9 9 1 1 1 1 1 2 1 1 2 1 1 1 1 2 1 1 4 6 6 | 8 2 C                                   | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T * 66/0  DIO * 83/0  DESCRIPTION OF ELEMENT  COMMANOS CH 01 COMMANOS CH 02 COMMANOS ONNITOR AMPLIFIER FROM GRP2TO. ELMOT   | P02<br>P03<br>P04<br>5/14<br>************************************                              | 00            | PAGE SC                               |
| GNAL NAME  CONT.CF  SLO  SL1  SL2  SP0SL1  SP0SL2  SUPVON             | COLOR   | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>00 • STU<br>************************************   | 1 9 2 9 3 9 9 4 9 9 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1         | 8 2 C                                   | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04<br>***********************************                                       | 00            | PAGE SC                               |
| GNAL NAME  — CONT.CF SADC  SL1  SL2  SL3  SPOSL1  SPOSL2  SUPVON      | COLOR   | 090. | 70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>71<br>26<br>27<br>26<br>27<br>26<br>27<br>26<br>27<br>26<br>27<br>27<br>26<br>27<br>27<br>26<br>27<br>27<br>28<br>27<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>59<br>20<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50 | 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9                         | 8 2 C                                   | L<br>• • • • • • • • • • • • • • • • • • • | APE      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04<br>5/14<br>************************************                              | 00            | PAGE SC                               |
| GNAL NAME  CONT.CF  SLO  SL1  SL2  SL3  SPOSL1  SPOSL2  SUPYON  TC/RC | COLOR   | 090. | 70 70 70 70 70 70 70 70 70 70 70 70 70 7   | 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9                         | 8 2 C                                   | L<br>• • • • • • • • • • • • • • • • • • • | TYF      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T e6/0  DIO 83/0  DESCRIPTION OF ELEMENT  COMMANOS CH 01 COMMANOS CH 02 COMMANOS MONITOR AMPLIFIER FROM GRP27. ELM01 TO GRP26. ELM01  FROM GRP27. ELM01 TO GRP26. ELM01  FROM GRP27. ELM01 FROM GRP27. ELM01 TO GRP26. ELM01  FROM GRP27. ELM01 TO GRP26. ELM01  FROM GRP27. ELM01 TO GRP26. ELM01  TO GRP26. ELM01  FROM GRP27. ELM01 TO GRP26. ELM01  TO GRP26. ELM01  FROM GRP20. ELM03  FROM GRP20. ELM03  FUSE FAILURE DETFCTOR TAPE OECK PERIPHERY CONTR. FROM GRP20. ELM14  TO SCURCE SELECTCR (GRP28) RC-FILIER AU010 IMPUT (FROM GRP21, ELM13) FROM GRP21. ELM13 FROM GRP21. ELM13   | P02<br>P03<br>P04<br>***********************************                                       | 00            | PAGE SC                               |
| GNAL NAME  — CONT.CF SADC  SLO  SL1  SPOSL1 SPOSL2 SUPVON  TC/RC      | COLOR   | 090. | 70 70 70 70 70 70 70 70 70 70 70 70 70 7   | 1 9 9 2 9 3 9 9 4 9 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1             | 8 2 C                                   | L<br>• • • • • • • • • • • • • • • • • • • | TYF      | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T e6/0  DIO e3/0  DESCRIPTION OF ELEMENT  COMMANOS CH 01 COMMANOS CH 02 COMMANOS CH 02 COMMANOS CH 07 FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP26. ELMO1 FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP20. ELMO3 FROM GRP20. ELMO3 FROM GRP20. ELMO3 FUSE FAILURE DETFCTOR TAPE DECK PERIPHERY CONTR. FROM GRP20. ELM14  TO SCURCE SELECTOR (GRP28) RC-FILTER AUOLO IMPUT (FROM GRP21. ELM13) FROM GRP21. ELM13 MONITOR AMPLIFIER. AUDIO AUDIO IMPUT  CONNECTOR SYNCHRONIZER TIME COOLE MRITE-FREAD UNIT TIME COOLE MRITE-FREAD UNIT   | P02<br>P03<br>P04<br>***********************************                                       | 00            | 1.87C.762.C                           |
| SLO SL1 SL2 SL3 SPOSL1 SPOSL2 SUPVON TC/RC TCINDL                     | COLOR   | 090. | 700 70 70 70 70 70 70 70 70 70 70 70 70  | 1 9 9 2 9 3 9 9 4 9 9 4 9 9 1 1 1 1 1 1 1 1 1 1 1 1             | 8 E2C                                   | L<br>• • • • • • • • • • • • • • • • • • • | TYPE NO. | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T   | P02<br>P03<br>P04<br>***********************************                                       | 00            | 1.87C.762.C0  1.82C.721.8 1.82C.722.8 |
| WILL! ST  | COLOR   | 090. | 70 70 70 70 70 70 70 70 70 70 70 70 70 7   | 1 9 9 2 9 3 9 9 4 9 9 4 9 9 4 9 9 1 1 1 1 1 1 1 1 1             | 8 I S S S S S S S S S S S S S S S S S S | L<br>• • • • • • • • • • • • • • • • • • • | TYPE NO. | I R E  | RESERVE RESERVE COMMANOS CH 03  L I S T * 60/0  DIO * 63/0  DESCRIPTION OF ELEMENT  COMMANOS CH 01 COMMANOS CH 02 COMMANOS MONITOR AMPLIFIER FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP27. ELMO1 TO GRP26. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP27. ELMO1 FROM GRP20. ELMO3 FROM GRP20. ELMO3 FROM GRP20. ELMO3 FROM GRP20. ELMO3  FUSE FAILURE DETFCTOR TAPE DECK PERIPHERY CONTR. FROM GRP20. ELM13 MONITOR AMPLIFIER. AUDIO AUDIO IMPUT  CONNECTOR SYNCHRONIZER TIME CODE MRITE/READ UNIT | P02<br>P03<br>P04<br>***********************************                                       | 00            | PAGE SC                               |

| SIGNAL NAME  | COLOR          | HI   | ASY GRP   | ELM  | PNT  | 5    | LV   | TYPE          | DESCRIPTION OF ELEMENT  |   | REMARK    | FLEMENT NR.   |
|--|----------------|------|---|--|--|------|------|---------------|---|---|-----------|---|
| < CONT.OF<br>1-WRTSL   |                |      | 28<br>60<br>70<br>70<br>70<br>70<br>70<br>70<br>70                        | 2<br>2<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>2   | 11<br>6<br>11<br>11<br>11<br>11<br>11<br>11<br>11  |      |      |               | FROM GRP20. ELM19 FROM GRP20. ELM17 FROM GRP20. ELM17 FROM GRP20. ELM18 RESERVE RESERVE COMMANDS CH 03 COMMANDS CH 01 COMMANDS CH 02 COMMANDS CH 02 COMMANDS MONITOR AMPLIFIER FROM GRP70. ELM07  | P01<br>P02<br>P01<br>P02<br>P03<br>P04<br>P05<br>P06<br>P07<br>P01  |           |   |
| TA-AC TMO  |                |      | 20<br>20<br>21<br>21  | 32<br>51<br>30<br>46   | 8<br>6 B<br>8<br>20  |      |      |               | TO AUDIG BASES BOARD, ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD MONO-STEREO-SWITCH   | P22<br>J12<br>J05<br>J13  |           | 1-870-728-60  |
| TA-ACTTC   |                |      | 20<br>20<br>21<br>21<br>21  | 32<br>51<br>30<br>40<br>41   | 12<br>88<br>12<br>20<br>20   |      |      |               | TO AUDIO BASIS BOARD. ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD TIME CODE WRITE/READ UNIT TIME CODE DELAY UNIT   | P27<br>J12<br>J05<br>J07<br>J08   |           | 1.82C.728.00<br>1.820.721.81<br>1.820.722.81  |
| TA-AC 101  |                |      | 20<br>20<br>21<br>21<br>21<br>21<br>21                                    | 32<br>51<br>30<br>42<br>43<br>44   | 10<br>78<br>10<br>20<br>20<br>20<br>20   | ~    |      | 1             | TO AUDIC BASIS BOARD. ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-DRIVER. CH 1 RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1 LINE AMPLIFIER. CH 1  | P27<br>J12<br>J05<br>J09<br>J10<br>J11<br>J11   |           | 1.82C.778.CO<br>1.82C.712.00<br>1.82C.712.81<br>1.82C.710.81<br>1.82O.714.e1  |
| TA-ACT92   |                |      | 20<br>20<br>21<br>21<br>21<br>21<br>21                                    | 32<br>51<br>30<br>47<br>48<br>49<br>50   | 14<br>98<br>14<br>20<br>20<br>20   |      | _    |               | TO AUDIC BASIS BOARD. ELM30 MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD HF-DRIVER, CH 2 RECORD AMPLIFIER. CH 2 REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER, CH 2  | P22<br>J12<br>J05<br>J14<br>J15<br>J16<br>J17   |           | 1.82C.728.CO<br>1.82C.713.00<br>1.82C.712.81<br>1.82O.710.81<br>1.820.714.81  |
| TA-AUIR  |                |      | 2C<br>2C  | 48   | 218<br>11A   | -    | -    |               | MASTER SERIAL INTERFACE<br>MASTER PERIPHERY CONTROLLER  | J09   |           | 1.82C.753.CO<br>1.82C.728.CO  |
| IC-CAPAT   | 6              |      | 21<br>21<br>70<br>70  | 11<br>45<br>8<br>9   | 8<br>10<br>8<br>8  | -    |      | N             | TO VU-METER PANEL, CH 1<br>LINE AMPLIFIER, CH 1<br>VU-METER CH 01, AUDIO<br>AUDIO CH 01 (FROM GRP21, ELM11)   | J02<br>J01<br>J02   |           | 1.820.714.81  |
| TAPAD-02   | 6              |      | 21<br>21<br>70<br>70  | 12<br>50<br>10   | 8<br>10<br>8<br>8  | -    |      | N             | TO VU-METER PANEL. CH 2<br>LINE AMPLIFIER. CH 2<br>VU-METER CH D2. AUDIO<br>AUDIO CH D2 (FRDM GRP21. ELM12)   | J03<br>J17<br>J03<br>J04  |           | 1-820-714-81  |
| TAPDI-31   |                |      | 21  | 44   | 10   | -    |      |               | REPRODUCE AMPLIFIER. CH 1   | J11   |           | 1.820.710.81  |
| • WILLI S  | ******         | **** | *******   | ****   | 12<br>9  | **** | **** | W I R E       | LINE AMPLIFIER. CH 1 MONO-STEREO-SHITCH  LIST + 86/0  | J12<br>J13  |           | 1.826.770.00  |
| • WILLI S • • • • • • • • • • • • • • • • • • •  | 1.820          | .090 | 21<br>  | 46<br>I G  | 9<br>N   | F2C  | **** | W I R E       | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S T  | J12<br>J13  | ********* | 1.82C.7714.81<br>1.82C.770.00<br>PAGE 92<br>ELEMENT NR.   |
| SIGNAL NAME  | 1.820          | .090 | 21<br>S S S<br>OC S S S   | 46<br>1 G<br>1 UDE<br>1 46<br>49<br>50   | 9<br>N<br>N<br>PNT   | F2C  |      | IAPE DECK & A | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  LIST • 86/0  LIST • 83/0  DESCRIPTION OF ELEMENT  MONO-STEREO-SWITCH  REPRODUCE AMPLIFIER. CH 2  LINE AMPLIFIER. CH 2  | J12<br>J13<br>5/14<br>************************************  | - 00      | 1.82C.770.00  P A G E 92  ELEMENT NR.  1.870.770.00  1.82C.710.81  1.82C.714.81   |
| SIGNAL NAME  | 1.820          | .090 | 21<br>  | 46<br>FUDE<br>100<br>46<br>49<br>50  | 9<br>N<br>N<br>PNT   | F2C  |      | IAPE DECK & A | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S T  | J12<br>J13<br>5/14<br>******<br>2/23<br>******  | - 00      | 1.82C.770.00 P A G E 97 ELEMENT NR. 1.820.770.00 1.82C.770.10.81  |
| SIGNAL NAME<br>TAPDI-02  | 1.820          | .090 | 21<br>-9C • S1<br>-9C • S1<br>-21<br>-21<br>-21                           | 46<br>FUDE<br>100<br>46<br>49<br>50  | 9<br>N<br>N<br>PNT<br>11<br>10<br>12   | F2C  |      | IAPE DECK & A | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S T  | J12<br>J13<br>***********************************   | - 00      | ELEMENT NR.  1.82C.710.81  1.82C.710.81  1.82C.710.81   |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02   | 1.820<br>COLOR | .090 | 21<br>  | 46<br>1 G<br>1 UDEF<br>46<br>49<br>50<br>44<br>49<br>11<br>45<br>46<br>8   | 9 N N N N N N N N N N N N N N N N N N N  | F2C  |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S T  | J12<br>J13<br>5/14<br>******<br>J13<br>J16<br>J17<br>J11<br>J16<br>J12<br>J12<br>J12<br>J13<br>J16  | - 00      | ELEMENT AR.  1.82C.71C.81  1.82C.714.81  1.82C.714.81  1.82C.714.81   |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02 TAPMS-01  | 1.820<br>COLOR | .090 | 21<br>ASY GRI<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21<br>21 | 46<br>11 G<br>11 G<br>11 G<br>11 G<br>11 G<br>12 G<br>12 G<br>12 G   | 9<br>N N N N N N N N N N N N N N N N N N N   | F2C  |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S Y  | J12<br>J13<br>55/14<br>6000000000000000000000000000000000000  | - 00      | ELEMENT NR.  1.82C.770.61  1.82C.710.81  1.82C.710.81  1.82C.710.82  1.82C.714.81   |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02 TAPMS-01  | 1.820<br>COLOR | .090 | 21 21 21 21 21 21 21 21 21 21 21 21 20 20 20 20                           | 46<br>1 G<br>1 UDEF<br>2 ELI<br>46<br>49<br>11<br>45<br>46<br>8<br>9<br>12<br>46<br>50<br>10<br>11<br>11<br>13<br>14<br>14<br>14<br>14<br>14<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16 | 9<br>NO.00<br>R A<br>NO.00<br>R A<br>11<br>10<br>12<br>1<br>1<br>1<br>7<br>9<br>11<br>17<br>9<br>9<br>11<br>19<br>9<br>11<br>19<br>9<br>11<br>19<br>9<br>11<br>19<br>9<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | 5    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  LIST 86/0  DESCRIPTION OF CLEMENT  MONO-STEREO-SWITCH REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2  TO VU-METER PANEL. CH 1 LINE AMPLIFIER. CH 1 TO VU-METER PANEL. CH 1 MONO-STEREO-SWITCH VU-METER CH 01. AUDIO AUDIO CH 01 (FROM GRP2I. ELMI1)  TO VU-METER PANEL. CH 2 VU-METER CH 02. AUDIO AUDIO CH 02 (FROM GRP21, ELMI2)  INT. SYCHMONIZER CAPSTAN CONTROL UNIT   | J12<br>J13<br>J13<br>J13<br>J14<br>J17<br>J17<br>J17<br>J17<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19<br>J19   | - 00      | 1.82C.770.00  PAGE 97  ELEMENT NR.  1.87C.770.61  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.7714.81  1.82C.7714.81  1.82C.7714.81   |
| TAPLI-01 TAPLI-02 TAPHS-01 TAPRS-02  | 1.820<br>COLOR | .090 | 21 21 21 21 21 21 21 21 21 21 21 20 20 20 20                              | 46<br>1 G<br>1 G<br>2 EL1<br>46<br>49<br>50<br>44<br>49<br>11<br>45<br>50<br>10<br>11<br>34<br>41<br>41<br>42<br>34<br>41  | 9  NO  R A  R A  R A  R A  R A  R A  R A  | 5    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  LIST 86/0  BESCRIPTION OF ELEMENT  MONO-STEREO-SWITCH REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2  REPRODUCE AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  LINE AMPLIFIER, CH 1  MONO-STEREO-SWITCH VU-METER CH 01. AUDIO AUDIO CH 01 (FROM GRP2I, ELMI1)  TO VU-METER CH 01. AUDIO AUDIO CH 02 (FROM GRP2I, ELMI1)  TO VU-METER CH 02. AUDIO AUDIO CH 02 (FROM GRP2I, ELMI2)  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN CONTROL UNIT  | J12<br>J13<br>J13<br>J13<br>J16<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17   | - 00      | 1.82C.770.00  ELEMENT NR.  1.870.770.00  1.82C.710.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00 |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02 TAPMS-01 TAPMS-02 TC-ADRO   | 1.820<br>COLOR | .090 | ASY GRF  21 21 21 21 21 21 21 21 20 20 20 20                              | 46<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 9<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | 5    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S Y  | J12<br>J13<br>5714<br>55714<br>55714<br>55714<br>55714<br>55714<br>55714<br>55714<br>55714<br>55714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714<br>57714 | - 00      | 1.82C.770.00  PAGE 97  ELEMENT NR.  1.870.770.00 1.82C.714.81 1.82C.714.81 1.82C.714.81 1.82C.714.81 1.82C.7714.81 1.82C.7714.81 1.82C.770.00 1.82C.770.00 1.82C.770.00   |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02 TAPMS-01 TAPMS-02 TC-ADR0 TC-ADR2   | 1.820<br>COLOR | .090 | 21  | 46<br>46<br>46<br>46<br>47<br>49<br>50<br>44<br>49<br>40<br>40<br>41<br>41<br>42<br>34<br>41<br>42<br>34<br>41<br>42   | 9<br>  | S    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  LIST 86/0  DESCRIPTION OF CLEMENT  MONO-STEREO-SWITCH REPRODUCE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 2 LINE AMPLIFIER. CH 1  REPRODUCE AMPLIFIER. CH 1  LINE AMPLIFIER. CH 1  LINE AMPLIFIER. CH 1  MONO-STEREO-SWITCH VU-METER PANEL. CH 1  MONO-STEREO-SWITCH VU-METER CH 01. AUDIO AUDIO CH 01 (FROM GRP21. ELM11)  TO VU-METER PANEL. CF 2  VU-METER CH 02. AUDIO AUDIO CH 02 (FROM GRP21, ELM12)  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN OOTROL UNIT CAPSTAN INTERFACE | J12<br>J13<br>J13<br>J13<br>J14<br>J17<br>J17<br>J11<br>J17<br>J17<br>J11<br>J17<br>J17<br>J17<br>J17   | - 00      | 1.82C.770.00  ELEMENT NR.  1.870.770.00  1.82C.710.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00 |
| TAPLI-01 TAPLI-02 TAPNS-01 TAPNS-02 TC-ADR0 TC-ADR2 TC-CAPOC   | 1.820<br>COLOR | .090 | 21  | 46  ( G G G G G G G G G G G G G G G G G G  | 9<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | S    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S Y  | J12<br>J13<br>J13<br>J13<br>J14<br>J17<br>J17<br>J11<br>J11<br>J17<br>J11<br>J11<br>J17<br>J17<br>J17   | - 00      | ELEMFNI NR.  1.82C.71C.81  1.82C.71C.81   |
| SIGNAL NAME TAPDI-02 TAPLI-01 TAPLI-02 TAPMS-01 TAPMS-02 TC-ADR0 TC-ADR0 TC-ADR2 TC-COIRI  | 1.820<br>COLOR | .090 | 21  | 46<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G   | 9  N N N N N N N N N N N N N N N N N N   | 5    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  LIST 83/0 00000000000000000000000000000000000  | J12<br>J13<br>J13<br>J13<br>J16<br>J17<br>J16<br>J17<br>J11<br>J16<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17  | - 00      | 1.82C.770.00  ELEMENT NR.  1.870.770.00  1.82C.710.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00 |
| TAPLITOI TAP | 1.820<br>COLOR | .090 | 21 ASY GRF 21 21 21 21 21 21 21 21 20 20 20 20 20 20 20 20 20 20 20 20 20 | 46  FUDEE 1  46  49  50  44  49  11  45  46  89  12  46  41  41  42  34  41  41  42  34  41  42  34  41  42  34  41  42  34  41  42  34  41  42  34  41  42  | 9  N N N 11 11 11 12 1 1 1 7 9 11 17 9 9 5 11 19 9 23 31 24 4 14 6 1A 13 39 32 32 32 32 32 32 32 33 33 34 34 35 36 37 38 38 38 38 38 38 38 38 38 38 38 38 38   | 5    |      | TYPE          | LINE AMPLIFIER. CH 1 MONO-STEREO-SWITCH  L I S Y  | J12<br>J13<br>J13<br>J13<br>J14<br>J17<br>J11<br>J16<br>J17<br>J11<br>J17<br>J11<br>J17<br>J17<br>J17<br>J17<br>J17<br>J17  | REMARK    | 1.82C.770.00  ELEMENT NR.  1.870.770.00  1.82C.710.81  1.82C.714.81  1.82C.714.81  1.82C.714.81  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00  1.82C.770.00 |

| SIGNAL NAME   | COLOR  | HI      | ASY GRP   | FIM  | PNT   | s     | LV      | TYPE             | DESCRIPTION OF ELEMENT  |   | REMARK                                | ELFMENT NA.  |
|---|--------|---------|---|--|---|-------|---------|------------------|---|---|---------------------------------------|--|
| TC-DATA3  |        |         | 20<br>20<br>20<br>20                            | 34<br>41<br>42   | 33<br>36<br>29A   |       | =:      |                  | INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  | P24<br>J02<br>J03   | BCHARL .                              | 1.820.764.00   |
| TC-DATA4  |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 31<br>35<br>28A   | _     | _       |                  | INT. SYNCHRONIZER<br>CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00   |
| TC-OATA5  |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 29<br>34<br>27A   | -     |         |                  | ENT. SYNCHRONIZER<br>CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00<br>1.820.727.00   |
| TC-DATAs  |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 27<br>33<br>26A   |       |         |                  | INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00   |
| TC-DATA7  |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 25<br>32<br>25A   | _     |         |                  | INT. SYNCHRONIZER<br>CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE  | P 24<br>J 0 2<br>J 0 3  |                                       | 1 - 82 C - 76 4 - 00<br>1 - 82 O - 72 7 - 00   |
| 1C-ENB  |        |         | 2C<br>20<br>20                                  | 34<br>41<br>42   | 17<br>28<br>21 A  | _     |         |                  | INT. SYNCHRONIZER<br>CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00   |
| TC-ENBG   |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 7<br>11<br>88   | _     |         |                  | INT. SYNCHRONIZER<br>CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00   |
| IC-EREF   |        |         | 20<br>20  | 41   | 14<br>108   |       |         |                  | CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE   | J02   |                                       | 1.820.764.00<br>1.82C.727.CO   |
| TC-HALL 1   |        |         | 38  | 1 2  | 4   | _     |         | F<br>µ           | FROM GRP39. ELMO2<br>TO GRP38. ELMO1  | J01<br>P02  |                                       |  |
| TC-HALL2  |        |         | 3 E<br>3 9                                      | 2  | 7   |       |         | F<br>M           | FRCM GRP39. ELMO2<br>TO GRP38. ELMO1  | J01<br>P02  |                                       |  |
| TC-HALL3  |        |         | 3 E<br>3 9                                      | 1 2  | 10  | _     |         | F<br>H           | FROM GRP39. ELMO2<br>TO GRP38. ELMO1  | J01   |                                       |  |
| TC-INEX   |        |         | 20<br>20  | 41<br>42   | 9<br>12A  |       |         |                  | CAPSTAN CONTROL UNIT<br>CAPSTAN INTERFACE   | 703   |                                       | 1.820.764.GO   |
| TC-IRQ  |        |         | 2C<br>20<br>20                                  | 34<br>41<br>42   | 5<br>13<br>9A   | -     |         |                  | INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  | P74<br>J07<br>J03   |                                       | 1.870.764.00   |
| TC-REF  |        |         | 2C<br>20  | 41   | 8<br>11A  | -     |         |                  | CAPSTAN CONTROL UNIT  | J02   |                                       | 1.870.764.CO<br>1.870.727.CO   |
| TC-REFP   |        |         |   | 41 42  | 3 48  | =     |         |                  | CAPSTAN CONTROL UNIT  | J02   |                                       | 1.820.764.CO<br>1.82C.727.00   |
| TC-RESMP  |        |         | 20<br>20<br>20                                  | 34<br>41<br>42   | 9<br>10<br>8A   | ~     |         |                  | INT. SYACHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  | P24<br>J02<br>J03   |                                       | 1.820.764.00   |
| • WILLI ST  |        |         | * * * * * * * * * * * * * * * * * * *           | ***  | * * * * ¢   | ***   | ****    |                  |   | •   | • • • • • • • • • • • • • • • • • • • | PAGE 94 *  |
|   | 1.820. | ****    |   | ***  | • • • • •   |       |         |                  |   | 03/14   |                                       | F A 11 C 37 F  |
| *********   |        | C90.    | UC • ST   | JDER   | A (   | E 2 C | * T     | APE DECK & AUDIO | • 83/   | 102/23 -  |                                       | •  |
| STONAL NAME   | COL 09 | • • • • | *******   | ****   | ****  |       | • • • • | *************    | • 83 <i>)</i>   | 102/23 -  | 00                                    | ELEVENT ND   |
| SIGNAL NAME   | COLOR  | MI      | ASY GRP   | ELM<br>34<br>41  | PNT<br>15<br>27   | S -   | LV      |                  | OESCRIPTION OF ELEMENT INT. SYNCHRONIZER CAPSTAN CONTROL UNIT   | /02/23 -<br>*******<br>P24<br>J02   | 00                                    | 1.820.764.00   |
|   | COLOR  | • • • • | A SY GRP  20 2C 20 2C                           | ELM<br>34<br>41<br>42  | PNT<br>15<br>27<br>20A  |       | • • • • | *************    | 0 83/ 0ESCRIPTION OF ELEMENT INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN TOTERFACE CAPSTAN CONTROL UNIT  | P24<br>J02<br>J03   | 00                                    | 1.820.764.00<br>1.820.777.00   |
| TC-RW   | COLOR  | • • • • | ASY GRP  20 20 20 20 20 20 20 20                | ELM<br>34<br>41<br>42<br>41<br>42  | PNT<br>15<br>27<br>20A<br>24<br>13A   |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT  | P24<br>J02<br>J03<br>J03<br>J03   | 00                                    | 1.820.764.00<br>1.820.727.00<br>1.820.727.00<br>1.820.727.00   |
| TC-SL 1   | COLOR  | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM<br>34<br>41<br>42<br>41<br>42  | PNT<br>15<br>27<br>20A<br>24<br>13A   |       | • • • • | *************    | 0 83/ 0ESCRIPTION OF ELEMENT INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE   | P24<br>J02<br>J03<br>J03  | 00                                    | 1.820.764.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.60   |
| TC-SL 1 TC-SL 2   | COLOR  | • • • • | ASY GRP 20 20 20 20 20 20 20 20 20 20 20 20 20  | ELM<br>34<br>41<br>42<br>41<br>42<br>41<br>42<br>41<br>42<br>34  | PNT<br>15<br>27<br>20A<br>24<br>13A<br>23<br>14A  |       | • • • • | *************    | OESCRIPTION OF ELEMENT INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT INT. SYNCHRONIZER  | P24<br>J02<br>J03<br>J03<br>J02<br>J03<br>P24<br>J02  | 00                                    | 1.820.764.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.727.00   |
| TC-SL1 TC-SL2 TC-SL3  | COLOR  | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM 34 41 42 41 42 41 42 41 41 42 42 41 41 42 42 42  | PNT 15 27 20A 24 13A 23 14A 16 3 15 8 18 6A 6B  |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. COAT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL CAPSTAN INTERFACE  CAPSTAN INTERFACE  | P24<br>J03<br>J03<br>J03<br>P24<br>J03<br>P24<br>J02<br>P24<br>J02<br>P24<br>J03<br>J03<br>J03<br>J03   | 00                                    | 1.820.764.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.727.00   |
| TC-SL 1 TC-SL 2 TC-SL 3 TC-SL 4                                       | COLOR  | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM 34 41 42 41 42 41 42 41 42 41 42 41 41 42 42 42 42 42 42 42 42 42  | PNT 15 27 20A 24 13A 14A 16 6A 6B 18 10 17 5A 5B  |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. CONT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL CAPSTAN INTERFACE   | P24 J02 J03 J03 J02 J03 P24 J02 P24 J02 P04 P16 J03 J03 P02 P04 P16 J03 J03 P03   | 00                                    | 1.820.764.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.777.00<br>1.820.727.00<br>1.820.764.00<br>1.820.764.00   |
| TC-SL 1 TC-SL 2 TC-SL 3 TC-SL 4 TC-TCDIR                              | COLOR  | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM  34 41 42 41 42 41 42 41 42 41 41 41 41 42 42 42 42 42 41 44 41 46 42 42 42 41 41 41 41 41 41 41 41 41 41 41 41 41 | PNT 15 27 20A 24 13A 14A 16 68 18 17 58 17 5  |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. CORT. INT. SYNCHRONIZER CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRP2O. ELMI6   | P24 J02 J03 J02 J03 P24 J02 P24 J02 P24 J02 P24 J03 P04 P16 J03 P02 P04 P04 P06 P06 P06 P07 P07 P08   | 00                                    | 1.820.764.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00   |
| TC-SL1 TC-SL2 TC-SL3 TC-SL4 TC-TCDIR                                  | COLOR  | • • • • | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | ELM<br>34<br>41<br>42<br>41<br>42<br>41<br>42<br>41<br>41<br>41<br>41<br>41<br>41<br>41<br>41<br>41<br>41              | PNT 15 27 20A 24 13A 23 14A 16 3 15 8 18 6A 6B 18 17 5A 5B 17   |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. COAT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL CAPSTAN INTERFACE  | P24 J02 J03 J02 J03 J02 J03 P24 J02 P04 P16 J03 J03 P02 P04 P16 J03 P02   | 00                                    | 1.820.764.00 1.820.777.00 1.820.777.60 1.820.777.60 1.820.727.60 1.820.764.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00  |
| TC-SL1 TC-SL2 TC-SL3 TC-SL4 TC-TCDIR TC-TCMV                          | COL OR | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM 34 41 42 41 42 41 42 34 41 34 41 46 42 42 42 42 42 41 42   | PNT 15 27 20A 24 13A 14A 16 16 15 8 18 66 8 18 17 5 A 28  |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. CONT. INT. SYNCHRONIZER CAPSTAN INTERFACE FROM GRPZO. ELMIG  CAPSTAN INTERFACE FROM GRPZO. ELMIG  | P24 J02 J03 J02 J03 J02 J03 P24 J02 P24 J02 P04 P16 J03 J03 P02 P04 P16 J03 J03 P02 P04 P16 J03 P02 P04 P06 J03 P02 P04 P06 J03 P02   | 00                                    | I.820.764.00 I.820.777.00 I.820.777.00 I.820.777.00 I.820.727.00 I.820.764.00 I.820.764.00 I.820.777.00 I.820.777.00 I.820.777.00 I.820.777.00   |
| TC-SL1 TC-SL2 TC-SL3 TC-SL4 TC-TCDIR TC-TCMV                          | COL OR | • • • • | 20 20 20 20 20 20 20 20 20 20 20 20 20 2        | ELM 34 41 42 41 42 41 42 41 42 41 42 42 42 42 42 42 42 42 42 42 42 42 42   | PNI 15 27 20A 24 13A 16   |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. CONT. INT. SYNCHRONIZER CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE OECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL  | P24 J02 J03 J02 J03 J02 J03 J02 J03 P24 J02 P04 P16 J03 J03 P02 P04 P16 J03 J03 P02 J03 J03 J04 J05 J06 J07 J08 | 00                                    | 1.820.764.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00   |
| TC-SL1 TC-SL2 TC-SL3 TC-SL4 TC-TCDIR TC-TCDIR TC-TCDIR                | COLOR  | • • • • | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | ELM 34 41 42 41 42 41 42 41 42 41 42 42 42 42 42 42 42 42 42 44 45 45 47 42 44 45 46                                   | PNI 15 27 20A 23 14A 23 14A 16 6A 6B 18 10 17 5A 24 13 13 13 13 23 8 23 8 30 30 30 30 30 30 30 30 30 30 30 30 30                          |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. CONT. INT. SYNCHRONIZER CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRP2O. ELMI6  CAPSTAN INTERFACE TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL  TAPE OECK SERTAL INTERFACE  CAPSTAN INTERFACE TAPE DECK SERTAL INTERFACE  CAPSTAN INTERFACE TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER TAPE DECK PERIPHERY CONTR. TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROLLER MP-UNIT TO CONTROLLER MP-UNIT TO CONTROLLER MP-UNIT TO CONTROLLER  | P24 J02 J03 J03 J02 J03 J02 J03 P24 J02 P24 J02 P04 P16 J03 J03 P02 P04 P06 J03 J03 P02 P04 P06 J03 J03 P02 P04 P06 J03 J03 J03 J04 J05 J06 J07 J08   | 00                                    | 1.820.764.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.727.00 1.820.764.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.727.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00 1.820.761.00              |
| TC-SL1 TC-SL2 TC-SL3 TC-SL4 TC-TCDIR TC-TCDIR TC-TCMV TC-TCMV TC-TCMV | COLOR  | • • • • | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | ELM 34 41 42 41 42 44 41 44 41 42 42 42 42 42 42 42 42 42 43 44 45 46 47 47 47 47 47 47 47 47 47 47 47 47 47           | PNI 15 27 20A 24 13A 14A 23 14A 16 68 18 17 5 2 A 24 8 24 8 3 3 1 3 1 3 1 2 2 8 2 3 8 3 0 3 0 3 0 2 2 8 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 |       | • • • • | *************    | OESCRIPTION OF ELEMENT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  CAPSTAN CONTROL UNIT CAPSTAN INTERFACE  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  INT. SYNCHRONIZER CAPSTAN CONTROL UNIT  PAR. COAT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL CAPSTAN INTERFACE CAPSTAN INTERFACE FROM GRPZO. ELMI6  PAR. CONT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL CAPSTAN INTERFACE FROM GRPZO. ELMI6  CAPSTAN INTERFACE TAPE OECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL TAPE OECK SERIAL INTERFACE TAPE OECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL | P24 J02 J03 J03 J02 J03 J02 J03 P24 J02 P04 P16 J03 J03 P02 P04 P16 J03 J03 P02 J03 J03 P02 J03 J03 J03 P02 J03 J03 J04 J05 J06 J07 J08 | 00                                    | 1.820.764.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.764.00 1.820.764.00 1.820.764.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.777.00 1.820.764.00 1.820.764.00 1.820.764.00 1.820.763.00 1.820.763.00 1.820.763.00 1.820.763.00 1.820.763.00 1.820.763.00 1.820.763.00 1.820.763.00 |

| SIGNAL NAME  | COLOR   | MI   | ASY GRP   | EL   | PNT   | S     | LV   | TYPE           | DESCRIPTION OF ELEMENT   |   | REMARK    | ELEMENT NA.  |
|--|---------|------|---|--|---|-------|------|----------------|--|---|-----------|--|
| TD-CAPSY   |         | -    |   | 4<br>41<br>48  | 13<br>7<br>22A  |       |      |                | PAR. CONT. INT. SYNCHROMIZER<br>CAPSTAN CONTROL UNIT<br>MASTER SERIAL INTERFACE  | P04<br>J02<br>J09   |           | 1-82C-764.C0<br>1-820-753.00   |
| TC-CRES  |         |      | 2C<br>20  | 41   | 26<br>6A  | -     |      |                | CAPSTAN CONTROL UNIT<br>TAPE DECK PERIPHERY CONTR.   | J02   |           | 1.82C.764.CO   |
| TE-C307K   |         |      | 20  | 5<br>32  | 7<br>16   | -     |      |                | SPOOLING MOTOR SUPPLY<br>TO AUDIC BASIS BOARD, ELM30   | P05   |           |  |
|  |         |      | 20<br>20<br>21                                  | 46<br>51<br>30   | 22<br>198<br>16   |       |      |                | MP-UNIT TO CONTROL MASTER PERIPHERY CONTROLLER FROM TAPE DECK BASIS BOARD TIME CODE WRITE/READ UNIT  | J07<br>J12<br>J05<br>J07  |           | 1.820.781.00<br>1.820.728.00   |
|  |         |      | 21<br>21<br>21                                  | 40<br>41<br>42   | 25<br>25<br>25  |       |      |                | TIME CODE DELAY UNIT<br>HF-DRIVER. CH 1  | 108<br>80L  |           | 1.820.721.81   |
|  |         |      | 21<br>21  | 43   |   |       |      |                | RECORD AMPLIFIER. CH 1 REPRODUCE AMPLIFIER. CH 1   | J10   |           | 1.820.712.81   |
|  |         |      | 21<br>21  |  | 25<br>25  |       |      |                | LINE AMPLIFIER. CH I<br>MOND-STEREO-SWITCH   | J12   |           | 1.820.714.81   |
|  |         |      | 21  | 47   | 25  |       |      |                | HF-DRIVER, CH 2<br>RECORD AMPLIFIER, CH 2  | J14   |           | 1.820.713.CC   |
|  |         |      | 21  | 49   |   |       |      |                | REPRODUCE AMPLIFIER. CH 2<br>LINE AMPLIFIER. CH 2  | J16   |           | 1.82C.71C.81<br>1.820.714.81   |
|  |         |      | 31  | 3  | 7   | _     |      |                | FROM GRP20. ELMO5  | P02   |           |  |
| TC-C614K   |         |      | 20  | 46   | 7   | _     |      |                | MP-UNIT TO CONTROL   | J07   |           | 1.82C.781.00   |
| TD-C76K  | 9       |      | 19  | 1 2  | :   |       |      | F              | FROM GRP32. ELMO2<br>TO GRP21. ELMO2   | J01<br>P01  |           |  |
|  |         |      | 20<br>20<br>20                                  | 40<br>46   | 17<br>16  |       |      |                | CAPSTAN MOTOR ORIVE AMPLIFIER<br>SPOOLING MOTOR DRIVER<br>MP-UNIT TO CONTROL   | J01<br>J07  |           | 1.820.759.00   |
|  | 9       |      | 2G<br>20  | 70   | 15  |       |      | F              | WIRE FIELD<br>FROM GRP21. FLMOI  | J13   |           |  |
|  |         |      | 21  | 2  | 4   |       |      | Ē              | TO GRP20. ELM70<br>From Grp19. ELM02   | JOI   |           |  |
|  |         |      | 32<br>39  | 1  |   |       |      |                | OUTPUT<br>From Grp20. ELM03  | POI   |           |  |
| TC-OATAO   |         |      | 20  | 42   |   | -     |      |                | CAPSTAN INTERFACE  | J03   |           | 1.820.727.00   |
|  |         |      | 20<br>20  | 44   | 39  |       |      |                | TAPE DECK PERIPHERY CONTR.<br>TAPE DECK COUNTER / TIMER  | J04<br>J05  |           | 1.820.761.00   |
|  |         |      | 2C<br>20  | 46   | 39  |       |      |                | SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL   | J06<br>J07  |           | 1.820.781.00   |
|  |         |      | 20  | 47   |   | -     | -    |                | TAPE OFCK SERIAL INTERFACE   | JOA   |           | 1.820.763.00   |
| 7D-DATAL   |         |      | 20<br>20  | 42   |   |       |      |                | TAPE DECK PERIPHERY CONTR.   | J03   |           | 1.82C.762.CC   |
|  |         |      | 20  | 44   | 38  |       |      |                | SPOOLING MOTOR CONTROLLER  | J05   |           | 1.820.761.00   |
|  |         |      | 20  | 46   |   |       |      |                |  |   |           |  |
| • WILLI S  | ******* | **** | ******  | 47<br>G  | N   | ****  | **** | W I R E        | ************************   | C5/14   | • 11:48 • | 1.870.761.CC   |
| **************************************                       | 1.82C.  | C90. | S 1   | 47<br>G  | 38<br>N   | £ 2 C | * 1  | APE DECK & AUC | L 1 S T • 66/1   | J08   | 11:48 •   | 1.87C.763.CG   |
| SIGNAL NAME  | 1.82C.  | C90. | OC • ST   | 47<br>   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | L 1 S T • 06/1   | J08   | 11:48 •   | 1.870.763.00   |
| SIGNAL NAME  | 1.82C.  | C90. | OC • ST   | 47<br>G  | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | L 1 S T • 66/1   | JOR   | 11:48 •   | 1.87C.763.CG   |
| SIGNAL NAME  | 1.82C.  | C90. | S 1   | 47<br>G<br>UDEF  | 38<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | £ 2 C | * 1  | APE DECK & AUC | L 1 S T  | JOR<br>   | 11:48 •   | 1.87C.763.CC   |
| SIGNAL NAME  | 1.82C.  | C90. | ASY GRP   | 47<br>G<br>*****<br>UDEF<br>****<br>42<br>43<br>44<br>45   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | DESCRIPTION OF ELEMENT  CAPSTAN INTERFACE  TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP—UNIT TO CONTROL TAPE DECK SERIAL INTERFACE   | JOR   | 11:48 •   | PAGF 96 4  |
| SIGNAL NAME  | 1.82C.  | C90. | ASY GRP 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>G ************************************   | 38<br>N 100<br>N N N N N N N N N N N N N N N N N N N | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR<br>05/14<br>05/23 -<br>103<br>JO4<br>JO5<br>JO6<br>JO7<br>JO8<br>JO3<br>JO3<br>JO4  | 11:48 •   | 1.87C.763.CG PAGF96  ELEMENT NR.  1.87C.777.CG 1.87C.776.2.CG 1.87C.776.1.CG 1.87C.776.1.CG 1.87C.776.1.CG   |
| SIGNAL NAME  | 1.82C.  | C90. | ASY GRP 200 200 200 200 200 200 200 200 200 20  | 47<br>G  | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | DESCRIPTION OF ELEMENT  CAPSTAN INTERFACE  TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL TAPE DECK SERIAL INTERFACE  CAPSTAN INTERFACE TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL TAPE DECK SERIAL INTERFACE  TAPE DECK COUNTER / TIMER SPOOLING MOTOR CONTROLLER SPOOLING MOTOR CONTROLLER SPOOLING MOTOR CONTROLLER | JO8<br>C5/14<br>22/23   | 11:48 •   | 1.87C.763.CC  PAGF 96  PAGF 96  1.87C.777.CC  1.87C.761.CO  1.87C.760.CC  1.87C.761.CC  1.87C.763.CC  1.82C.763.CC  1.82C.763.CC  1.82C.763.CC  1.82C.763.CC   |
| SIGNAL NAME  | 1.82C.  | C90. | ASY GRP 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR<br>05/14<br>20/2/3  | 11:48 •   | 1.87C.763.CG P A G F 96 P A G F 9 |
| SIGNAL NAME TO-DATA2   | 1.82C.  | C90. | ASY GRP 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>G<br>**********************************  | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L I S T  | J08<br>C5/14<br>J03<br>J04<br>J05<br>J06<br>J07<br>J08<br>J04<br>J05<br>J06<br>J07<br>J08<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09   | 11:48 •   | ELEMENT AR.  1.870.763.00  FLEMENT AR.  1.870.777.00  1.870.761.00  1.870.763.00  1.820.763.00  1.820.763.00  1.820.763.00  1.820.763.00  1.820.763.00   |
| SIGNAL NAME TO-DATA2   | 1.82C.  | C90. | ASY GRF 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>G ************************************   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JO8<br>C5/14<br>JO3<br>JO4<br>JO5<br>JO6<br>JO7<br>JO8<br>JO6<br>JO7<br>JO8<br>JO6<br>JO7<br>JO8<br>JO6<br>JO7<br>JO8<br>JO6<br>JO7<br>JO8<br>JO6<br>JO7<br>JO8<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9<br>JO9 | 11:48 •   | 1.87C.763.CC  P A G F 96  ELEMENT NR.  1.87C.777.CC 1.87C.763.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.775.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.763.CC 1.87C.776.CC  |
| SIGNAL NAME TO-DATA2   | 1.82C.  | C90. | ASY GRR 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>G G<br>WUDEF<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>48<br>46<br>47<br>48<br>46<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR<br>C5/14<br>D2/23 -<br>J03<br>J04<br>J05<br>J06<br>J07<br>J08<br>J06<br>J07<br>J08<br>J08<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09   | 11:48 •   | 1.87C.763.CC  PAGF 96  ELEMENT NR.  1.87C.767.CC 1.87C.761.0C 1.87C.762.CC 1.87C.776.0C 1.87C.77 |
| SIGNAL NAME TO-DATA2 TD-DATA3                                | 1.82C.  | C90. | ASY GRP 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>G G G G G G G G G G G G G G G G G G G  | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR<br>C5/14<br>D2/23 -<br>J03<br>J04<br>J05<br>J06<br>J07<br>J08<br>J03<br>J04<br>J05<br>J06<br>J07<br>J08<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09<br>J09   | 11:48 •   | 1.82C.763.CC  PAGF 96  PLEMENT NR.  1.87C.767.CC 1.87C.761.CO 1.87C.762.CC 1.87C.763.CC 1.87C.763.CC 1.87C.763.CC 1.87C.776.CC 1.87C.776.CC 1.87C.7763.CC 1.87C.763.CC 1.87C.7 |
| SIGNAL NAME TO-DATA2 TD-DATA3                                | 1.82C.  | C90. | ASY GRP 200 200 200 200 200 200 200 200 200 20  | 47<br>G<br>G<br>WHEN<br>WDEF<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR   | 11:48 •   | 1.87C.763.CC  PAGF 96  PAGF 96 |
| SIGNAL NAME TO-DATA2 TD-DATA3                                | 1.82C.  | C90. | ASY GRP 200 200 200 200 200 200 200 200 200 20  | 47<br>G G **********************************   | 38<br>N N 1<br>30 P N 37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>36<br>36<br>36<br>36<br>36<br>36<br>36<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37<br>37  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14   | 11:48 •   | 1.87C.763.CC  PAGF 96  PAGF 96  PAGF 96  PAGF 96  1.87C.777.CC 1.87C.761.0C 1.87C.762.CC 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.776.0C 1.87C.761.0C 1.87C.776.0C  |
| SIGNAL NAME TO-DATA2 TO-DATA3                                | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>G G G G G G G G G G G G G G G G G G G  | 38<br>N N N N N N N N N N N N N N N N N N N   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L I S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  P A G F 96  ELEMENT NR.  1.87C.776.CC 1.87C.761.0C 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.763.CC 1.87C.776.CC 1.87C.777.CC   |
| SIGNAL NAME TO-DATA2  TD-DATA3                               | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>GG<br>GG<br>Week<br>FELI<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38<br>N N A A A A A A A A A A A A A A A A A A   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  P A G F 96  ***********************************  |
| SIGNAL NAME TO-DATA2  TD-DATA3                               | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L I S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  PAGF 96  ELEMENT NR.  1.87C.777.CC 1.87C.7763.CC 1.87C.7763.CC 1.82C.776.CC 1.82C.776.CC 1.82C.776.CC 1.82C.776.CC 1.82C.776.CC 1.82C.776.CC 1.82C.763.CC  |
| SIGNAL NAME TO-DATA2  TD-DATA3                               | 1.82C.  | C90. | ASY GRF  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>************************************   | 38 N N N N N N N N N N N N N N N N N  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14   | 11:48 •   | 1.87C.763.CC  PAGF 96  ELEMENT NR.  1.87C.777.CC 1.87C.761.00 1.87C.762.CC 1.87C.776.00 1.87C.763.00 1.87C.776.00 1.87C.763.00   |
| SIGNAL NAME TO-DATA2  TD-DATA3  TD-DATA4                     | 1.82C.  | C90. | ASY GRA   | 47<br>************************************   | 38 N N N N N N N N N N N N N N N N N  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  PAGF 96  ELEMENT NR.  1.87C.762.CC 1.87C.761.CC 1.87C.762.CC 1.87C.773.CC 1.87C.763.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.776.CC 1.87C.763.CC 1.87C.77C.7C 1.87C.76 |
| SIGNAL NAME TO-DATA2 TO-DATA3 TO-DATA4                       | 1.82C.  | C90. | ASY GRP 200 200 200 200 200 200 200 200 200 20  | 47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 30 M P P T 30 M 30 P 37 37 37 37 37 37 36 36 36 36 36 36 36 36 36 36 37 37 37 34 34 34 34 34 34 34 34 34 34 34 34 34   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  PAGF 96  PAGF 96 |
| SIGNAL NAME TO-DATA2 TO-DATA3 TO-DATA4                       | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>Gentle State S | 38 30 M PNT 30 M PNT 37 37 37 37 37 37 36 36 36 36 36 36 36 36 36 37 37 37 37 37 37 37 37 37 37 37 37 37  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR   | 11:48 •   | 1.87C.763.CC  PA G F 96  PA G F PA G PA G  |
| ID-DATAS   | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 30 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9   | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L I S Y  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.87C.763.CC  PAGF 96  ***********************************   |
| SIGNAL NAME TO-DATA2  TD-DATA3  TD-DATA4                     | 1.82C.  | C90. | ASY GRF 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>45<br>46<br>47<br>47<br>42<br>44<br>45<br>46<br>47<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 N N N N N N N N N N N N N N N N N  | £ 2 C | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.82C.763.CC  1.82C.776.CC  1.82C.776.CC  1.82C.776.CC  1.82C.762.CC  1.82C.776.CC  1.82C.762.CC  1.82C.776.CC  1.82C.763.CC  1.82C.776.CC  1. |
| SIGNAL NAME TO-DATA2  TD-DATA3  TD-DATA4  TD-DATA6  TD-DATA7 | 1.82C.  | C90. | ASY GRP  20 20 20 20 20 20 20 20 20 20 20 20 20 | 47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 30 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9   |       | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.82C.763.CC  PAGF 96  ELEMENT NR.  1.87C.777.CC 1.87C.763.CC 1.87C.776.CC 1.87C.777.CC 1.87C.77 |
| SIGNAL NAME TO-DATAS TD-DATAS TD-DATA6 TD-DATA7              | 1.82C.  | C90. | ASY GRF 20 20 20 20 20 20 20 20 20 20 20 20 20  | 47<br>42<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>42<br>43<br>44<br>45<br>46<br>47<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 30 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9   |       | * 1  | APE DECK & AUC | L 1 S T  | JOR   | 11:48 •   | 1.82C.763.CC  PAGF 96  PAGF 96 |
| SIGNAL NAME TO-DATA2  TO-DATA3  TD-DATA4                     | 1.82C.  | C90. | ASY GRA   | 47<br>42<br>44<br>45<br>46<br>47<br>42<br>44<br>46<br>47<br>42<br>46<br>47<br>42<br>46<br>47<br>47<br>48<br>46<br>47<br>47<br>48<br>46<br>47<br>47<br>48<br>46<br>47<br>48<br>46<br>47<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48<br>48   | 38 N N N N N N N N N N N N N N N N N  |       | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR C5/14 C5/14 JOS   | 11:48 •   | 1.82C.763.CC  PAGF 96  PAGF 96 |
| SIGNAL NAME TO-DATAS TO-DATAS TO-DATA6 TO-DATA6              | 1.82C.  | C90. | ASY GRP  200 200 200 200 200 200 200 200 200 2  | 47 C C C C C C C C C C C C C C C C C C C   | 38  |       | * 1  | APE DECK & AUC | TAPE DECK SERIAL INTERFACE  L 1 S T  | JOR   | 11:48 •   | 1.87C.763.CC  PA G F 96  PA G F P 96  PA G F 96  PA G P |

| SIGNAL NAME   | COLOR   | MI   | ASY GRP  | ELM P   | NT S  | LV  | TYPE    | DESCRIPTION OF ELEMENT   |  | REMARK      | FLEMENT MR.  |
|---|---------|------|--|---|---|-----|---------|--|--|-------------|--|
| TO-ICRE2  |         |      | 20   |   | 11  |     |         | TAPE DECK COUNTER / TIMER  | J05  |             | 1.820.761.00   |
| ID-ICRE3  |         |      | 20   | 44 1  | 16  |     |         | TAPE DECK COUNTER / TIMER  | J05  |             | 1.820.761.00   |
| IO-ICRE4  |         |      |  | 44 1  | 7   | ~-  |         | TAPE DECK COUNTER / TIMER  | J05  |             | 1.820.761.00   |
| TO-ICRE5  |         |      |  |   | 23  |     |         | TAPE DECK COUNTER / TIMER  | J05  |             | 1.820.761.00   |
| TD-IRQ  |         |      |  | 42 1  | 38  |     |         | CAPSTAN INTERFACE  | J03  |             | 1.820.727.00   |
|   |         |      | 20   | 46 1  | 13  |     |         | TAPE DECK COUNTER / TIMER MP-UNIT TO CONTROL   | J05  |             | 1.820.781.00   |
|   |         |      |  |   |   |     |         | TAPE OECK SERIAL INTERFACE   | JOB  |             | 1.820.763.00   |
| TD-MOVE   |         |      |  |   | 4 A<br>21 A   |     |         | TAPE DECK PERIPHERY CONTR.<br>MASTER SERIAL INTERFACE  | J04  |             | 1.820.753.00   |
| TD-MOVE1  |         |      |  |   | 9   |     |         | MOVE SEASOR<br>TAPE DECK COUNTER / TIMER   | P11  |             | 1 030 341 04   |
|   |         | -    | 20<br>45   |   | <u> </u>  |     |         | FROM GRP20. ELMII  | J05<br>P01   |             | 1.870.761.00   |
| TO-MOVE2  |         |      |  |   | 8   |     |         | MOVE SENSOR<br>TAPE DECK COUNTER / TIMER   | P11<br>J05   |             | 1.82C.761.C  |
|   |         |      | 45   |   | 8 -   |     |         | FROM GRP20. ELMII  | P01  |             |  |
| TD-MVCLK  |         |      | 20<br>20   |   | 23  |     |         | PAR. CONT. INT. SYNCHRONIZER PARALLEL REMOTE CONTROL   | P04  |             |  |
|   |         |      | 20   | 32  | 2   |     |         | TO AUDIO BASIS BOARD. ELM3C<br>TAPE DECK COUNTER / TIMER   | P72  |             | 1.820.761.00   |
|   |         |      | 20   | 48 2  | 258   |     |         | MASTER SERIAL INTERFACE<br>FROM TAPE DECK BASIS BOARD  | J09  |             | 1.820.753.00   |
|   |         |      | 21   |   | 6   |     |         | TIME CODE DELAY UNIT<br>FROM GRP20, ELM16  | J08  |             | 1.820.727.8  |
| TO-MVOLR  |         |      | 20   | 4 I   | -   |     |         | PAR. CONT. INT. SYNCHRONIZER   | P04  |             |  |
|   |         |      |  |   | 4   |     |         | PARALLEL REMOTE CONTROL<br>TO AUDIC BASIS BOARD. ELM30   | P16  |             |  |
|   |         |      |  |   | 4<br>5 A  |     |         | TAPE DECK COUNTER / TIMER<br>MASTER SERIAL INTERFACE   | J05  |             | 1.820.761.00   |
|   |         |      |  |   | 4   |     |         | FROM TAPE DECK BASIS BOARD<br>TIME CODE DELAY UNIT   | J05  |             | 1.820.722.8  |
|   |         |      | 27   | 2 2   |   |     |         | FROM GRP20. ELM16  | P07  |             |  |
| TO-NA (   |         |      | 20   | 46<br>  | <u>9</u> -  |     |         | MP-UNIT TO CONTROL   | J07  |             | 1.820.781.00   |
| TD-PENBL  |         |      |  | 40 2<br>43 2  | CA  |     |         | SPOOLING MOTOR DRIVER TAPE DECK PFRIPHERY CONTR.   | J01<br>J04   |             | 1.820.759.00   |
| TD-PENBR  |         |      |  | 40 1  |   |     |         | SPOOLING MOTOR ORIVER  | J01  |             | 1.020.759.00   |
| 74 84544  |         |      |  | 43 2  |   |     |         | TAPE DECK PERIPHERY CONTR.   | J04  |             | 1.820.762.00   |
| TC-PWENB  |         |      | 20<br>20   | 5<br>43 1   | CA  |     |         | SPOCLING MOTOR SUPPLY TAPE DECK PERIPHERY CONTR.   | P05  |             | 1.820.762.00   |
| WILLI ST  | UDER AG | :    | 31<br>   | 3<br>G N  | 8<br>******   |     |         | L 1 S T * 86/  |  |             |  |
| • WILLI ST  | UDER AG | :    | 31<br>   | G N   | A E 2 C   | • T | H I R E | L 1 S T * 86/  | 05/14  | 11:48       |  |
| WILLI ST  | 1.82C   | 090. | 31<br>S I<br>S O S S O O<br>S S O O S S O O<br>S S O O O S S O O O O   | 3<br>G N<br>DER<br>DER                                      | A E2C   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR. LEFT  | 05/14 :  | 11:48<br>00 | PAGF 98  |
|   | 1.82C   | 090. | 31<br>   | 3<br>G N<br>DER<br>DER                                      | A E 2C  | • T | W I R E | L 1 S T * 86/  | 05/14  | 11:48<br>00 | PAGF 98 •  |
| SIGNAL NAME   | 1.82C   | 090. | ASY GRP 1  | 3<br>G N<br>DER<br>TELM P<br>7 1<br>3 1 1                   | A E2C   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7 TAPE LIFT MOTOR, LEFT  | P07<br>P07   | 11:48<br>00 | ELEMENT NR.  |
| SIGNAL NAME   | 1.82C   | 090. | ASY GRP I 20 20 46 20 20 47  | 3<br>G N<br>DER<br>TELM P<br>7 1<br>3 1 1                   | A EZC   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  | 05/14<br>02/23 -<br>02/23 -<br>P07<br>J04<br>P01   | 11:48<br>00 | ELEMENT NR.  |
| SIGNAL NAME TD-RALC1 T0-RALC2   | 1.82C   | 090. | 31<br>S I<br>S I<br>00 • STUC<br>00 • STUC<br>20 46<br>20 46<br>20 46<br>20 46   | 3<br>G N<br>0 + + + + + + + + + + + + + + + + + + +         | A EZC<br>NT 5<br>4<br>18<br>4<br>2<br>28<br>2   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE LEFT MOTOR, LEFT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7 TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7   | P07<br>J04<br>P01  | 11:48<br>00 | PAGF 98 •••••••••••••••••••••••••••••••••••  |
| MILLI ST  | 1.82C   | 090. | 31 S 1 S 1 S 20 C 20 C 46 C 20  | G N P T 1 3 1 1 7 1 1 3 1 1 1 7 1 1 3 1 1 1 7 1 1 3 1 1 1 1 | A 22C   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  | PO7<br>J04<br>PO1<br>PO1<br>PO1<br>PO1<br>PO1  | 11:48<br>00 | PAGF 98 •••••••••••••••••••••••••••••••••••  |
| MILLI ST  | 1.82C   | 090. | 31<br>S I<br>00 S S TU<br>00 S TU<br>20 20 46<br>20 46<br>20 46<br>20 46   | 3   | A E2C   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  | P07<br>J04<br>P01<br>P07<br>J04<br>P01<br>P07<br>J04<br>P01  | 11:48<br>00 | FLEMENT NR.  1.82C.762.00  1.82C.762.00  |
| SIGNAL NAME TD-RALC1 TO-RALC2 TO-RALEN  | 1.82C   | 090. | 31 S I S I S I S I S I S I S I S I S I S   | 3 G N P P P P P P P P P P P P P P P P P P                   | A £2C  NT S  4 18 4 2 28 2 5 1 3 4 1  | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, EL MO7  | PO7<br>J04<br>PO1<br>PO7<br>J04<br>PO1<br>PO7<br>J04<br>PO1<br>PO7<br>J04<br>PO1   | 11:48<br>00 | FLEMENT NR.  1.82C.762.00  1.82C.762.00  |
| SIGNAL NAME TD-RALC1 TO-RALC2 TO-RALEN  | 1.82C   | 090. | 31 S I S I S I S I S I S I S I S I S I S I   | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7   | P07<br>J04<br>P01<br>P07<br>J04<br>P01<br>P07<br>J04<br>P01<br>P07<br>J04<br>P01<br>P07<br>J04<br>P01  | 11:48<br>00 | ELEMENT NR.  1.82C.762.00  1.82C.762.00  |
| TO-RALEN TO-RALP1 TD-RALP2  | 1.82C   | 090. | 31 S I OO STUI 20 20 46 20 46 20 46 20 46 20 46 20 46 20 46  | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20. ELMO7   | PO7 J04 P01 P07  | 11:48<br>00 | ELEMENT NR.  1.82C.762.00  1.82C.762.00  |
| SIGNAL NAME TD-RALC1 TO-RALC2 TO-RALEN TD-RALP1   | 1.82C   | 090. | 31   | 3   | 8 - A   I   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. ELMO7   | POT JO4 PO1 POT JO4 PO1 PO7 JO4 PO1 PO1 PO7 JO4 PO1  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TO-RALEN TO-RALP2 TO-RARC1  | 1.82C   | 090. | 31  S I  000 STU(  000 STU | 3   | 8 - A   I   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR. REFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  | PO7 JO4 PO1  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| SIGNAL NAME TD-RALC1 TO-RALC2 TD-RALEN TD-RALP1 TD-RALP2 TD-RARC1   | 1.82C   | 090. | 31  S 1  00  | 3   | 8 A I I A E ZC  | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR.   | PO7 J04 PO1 PO8 J04 PO1  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TO-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN                                     | 1.82C   | 090. | 31   | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8   | PO7 JO4 PO1 PO7  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TO-RALEN TO-RALP2 TO-RARC1  | 1.82C   | 090. | 31 S I S I S I S I S I S I S I S I S I S I   | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR.   | POT JO4 PO1 PO7 JO4 PO1 POT JO4 PO | 11:48<br>00 | ELEMENT NR.  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  |
| TO-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN  | 1.82C   | 090. | 31  S I  00 STU(  20 20 46  20 46  20 46  20 46  20 46  20 47  20 20 47  | 3 G N N N N N N N N N N N N N N N N N N                     | 8 - A   I   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O, ELMO8  TAPE LIFT MOTOR, RIGHT   | POT JO4 PO1 PO7 JO4 PO1 PO8 JO | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALEN TD-RARC1 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2  | 1.82C   | 090. | 31  S 1  00  | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP20, ELMO8  | PO7 JO4 PO1 PO8 JO4 PO1 PO8 JO4 PO1 PO8 JO4 PO1 PO8 JO4 PO1  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALEN TD-RARC1 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2  | 1.82C   | 090. | 31  S I  00 STU  20 20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  | 3   | 8 - A   A   A   A   A   A   A   A   A   A   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  | PO7 JO4 PO1 PO8 JO4 PO8 JO | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RAREN TD-RAREN TD-RAREN TD-RAREN TD-RAREN                                     | 1.82C   | 090. | 31  S I  00 STU  20 20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8   | PO7 JO4 PO1 PO7 PO8 JO4 PO1  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RAREN TD-RAREN TD-RAREN TD-RAREN TD-RAREN                                     | 1.82C   | 090. | 31  S I  OO STUI  20 20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  20 20 47  20 20 47   | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  CAPSTAN INTERFACE   | PO7 JO4 PO1 PO8 JO4 PO8 PO8 JO4 PO8  | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALP2 TD-RARC1 TD-RARC1 TD-RARC1 TD-RARC1 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2                                     | 1.82C   | 090. | 31  S I  OO  | 3   | 8   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8  CAPSTAN INTERFACE TAPE DECK CONTR. TAPE DECK PERIPHERY CONTR. FROM GRP2O. ELMO8   | POT JO4 PO1 POR JO5 POR JO | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RAREN TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2                            | 1.82C   | 090. | 31  S I  OO STUI  20 20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  20 20 47   | 3   | 8 - A   1   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR. FROM GRPZO. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERIPHERY CONTR.   | POT JO4 PO1 POR JO4 PO1 PO8 JO4 PO1 PO1 PO8 JO4 PO1 PO8 PO8 PO1 PO8 PO1 PO8 PO1 PO8 PO1 PO8 PO8 PO1 PO8 PO1 PO8 PO1 PO8 PO1 PO8 PO1 PO8 PO | 11:48<br>00 | 1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00  1.82C.762.00   |
| TO-RALEN  TO-RALEN  TO-RALEN  TO-RALEN  TO-RALEN  TO-RALEN  TO-RAREN  TO-RAREN  TO-RAREN  TO-RAREN  TO-RAREN                  | 1.82C   | 090. | 31  S 1  OO STU(  ASY GRP (  20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  20 20 47  20 20 20 20 20 20 20 20 20 20 20 20 20   | 3   | 8 - A   I   A   EZC   A | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8 | POT JO4 PO1 POR JO5 POR JO | 11:48<br>00 | 1.82C.762.C0               |
| TD-RARC1 TD-RARC1 TD-RARC1 TD-RARC2 TD-RARC1 TD-RARC2 TD-RARC1 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC3          | 1.82C   | 090. | 31  S 1  OO STU(  ASY GRP    20 46  20 46  20 46  20 46  20 47  20 20 47  20 20 47  20 20 47  20 20 47  20 20 20 47  20 20 20 20 20 20 20 20 20 20 20 20 20  | 3   | 8 A   I - A   E2C - A   | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR RIGHT TAPE DECK PERTPHERY CONTR. FROM GRP2O. EL MO8  TAPE LIFT MOTOR RIGHT TAPE DECK SERIAL INTERFACE  MP—UNIT TO CONTROL TAPE DECK SERIAL INTERFACE  | POT JO4 PO1 POR JO4 PO1 PO 1 POR JO4 PO1 PO1 POR JO4 PO1 POR JO4 PO1 PO1 PO1 POR JO4 PO1   | 11:48<br>00 | 1.82C.762.00 1.82C.762.00 1.82C.762.00 1.82C.762.00 1.82C.762.00 1.82C.762.00  |
| TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RALEN TD-RAREN TD-RARC1 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 TD-RARC2 | 1.82C   | 090. | 31  S I  OO  | 3   | 8 - A   I   A   EZC   A | • T | W I R E | DESCRIPTION OF ELEMENT  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, LEFT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO7  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8  TAPE LIFT MOTOR, RIGHT TAPE DECK PERTPHERY CONTR. FROM GRPZO, ELMO8 | POT JO4 PO1 POR JO4 PO1 PO8 JO4 PO1 PO8 JO4 PO1 JO5 PO1 PO8 JO4 PO1 PO8 JO5 PO8 JO | 11:48<br>00 | 1.82C.762.C0  1.82C.763.C0 |

| •  | 1.820. | 090. |  | UDER                                    | A .  | E 2 C |      | APE DECK & AL | DIO + 83/02  | /23 - 0  |       | *************  |
|--|--------|------|--|---|--|-------|------|---------------|--|--|-------|--|
| SIGNAL NAME  |        |      | ASY GRP  |   |  |       | LV   | TYPE          | DESCRIPTION OF ELEMENT   |  | FMARK | ELEMENT NR.  |
| < CONT.OF  |        | _    | 2C<br>20<br>2C                                   | 45<br>46<br>47                          | 27<br>27<br>27   | -     |      |               | SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL TAPE DECK SERIAL INTERFACE  | J06<br>J07<br>J08  |       | 1.82C.760.00<br>1.820.781.00<br>1.820.763.00   |
| TC-RX  |        |      | 20   | 46                                      | 10   | -     |      |               | MP-UNIT TO CONTROL   | J07  |       | 1.620.781.00   |
| TO-SHLD  |        |      | 20<br>20<br>44                                   | 6<br>43<br>1                            | 8<br>8 A   |       | -57  |               | EXT. SENSORS<br>TAPE OECK PERIPHERY CONTR.<br>FROM GRP20. FLM06  | P06<br>J04<br>P01  | 1 124 | 1.820.762.00   |
| TC-SL 2  |        |      | 20   | 46                                      | 4  | -     |      |               | MP-UNIT TO CONTROL   | J07  |       | 1.820.781.00   |
| TD-SL 3  |        |      | 20<br>20   | 43                                      | 148  |       |      |               | TAPE DECK PERIPHERY CONTR.   | J04<br>J07   |       | 1.820.762.00<br>1.820.781.00   |
| 10-SL 4  |        |      | 2C<br>20   |   | 23<br>23   | -     |      |               | SPOOLING MOTOR CONTROLLER MP-UNIT TO CONTROL   | J06<br>J07   |       | 1.820.760.00   |
| IC-SL 5  |        |      | 2C<br>20   | 46                                      | 24<br>25   | _     |      |               | MP-UNIT TO CONTROL<br>TAPE DECK SERIAL INTERFACE   | J07<br>J08   |       | 1.820.781.0  |
| IC-2F9   |        |      | 2C<br>20   | 44                                      | 25<br>25   | •     |      |               | TAPE DECK COUNTER / TIMER MP-UNIT TO CONTROL   | J05<br>J07   |       | 1.820.761.0  |
| TD-SL 7  |        |      | 2C<br>20   | 42                                      | 148  | -     |      | 11-21-4       | CAPSTAN INTERFACE MP-UNIT TO CONTROL   | J03<br>J07   |       | 1.820.781.00   |
| ID-IGH1  |        |      | 20<br>20<br>20<br>38<br>39                       | 3<br>41<br>42<br>1<br>1                 | 8<br>1<br>18<br>8<br>8   |       |      | F             | CAPSTAN MOTOR ORIVE AMPLIFIER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE FROM GRP39. ELMOZ FROM GRP39. ELMO3 TO GRP38. ELMO1   | P03<br>J02<br>J03<br>J01<br>P01<br>P07   |       | 1.820.764.00   |
| TD-TGM2  |        |      | 20<br>20<br>20<br>38<br>39                       | 1<br>41<br>42<br>1<br>1                 | 10<br>2<br>28<br>11<br>10  |       |      | F             | CAPSTAN MOTOR DRIVE AMPLIFIER CAPSTAN CONTROL UNIT CAPSTAN INTERFACE FROM GRP39. ELMO2 FROM GRP20. ELMO3 TO GRP38. ELMO1   | P03<br>J02<br>J03<br>J01<br>P01<br>P02   |       | 1.820.764.00   |
| TC-TML1  |        |      | 20<br>20<br>36                                   | 9 44 1                                  | 9<br>1<br>9  | -     |      |               | TACHO SENSOR (SPOOLING M. LEFT) TAPE DECK COUNTER / TIMER TACHO SENSOR   | P09<br>J05<br>P01  |       | 1.82C.761.CC   |
| TC-TML2  |        |      | 20<br>20<br>36                                   | 9<br>44<br>1                            | 8<br>2<br>9  | -     |      |               | TACHO SENSOR (SPOOLING M. LEFT) TAPE DECK COUNTER / TIMER TACHO SENSOR   | P09<br>J05<br>P01  |       | 1.82C.761.60   |
| TD TWO:  |        |      | 20   | 10                                      | 9  | -     |      |               | TACHE SENSOR (SPOOLING M. RIGHT)   | P10<br>J05   |       |  |
| TD-TMR1  | ****** | **** | S 1  | G                                       | 3<br>9<br>   | 4 L   | **** | H I R E       | L 1 S T * 66/05  | P01  | 11:46 | 1.82C.761.00<br>1.820.771.00<br>PAGE 100   |
| WILLI ST   | 1.826. | 090. | 37<br>S I<br>00 • ST<br>********                 | G<br>WARREN                             | 9<br>*****   | E 2 C | • 1  | H I R E       | TACHO SENSOR   | P01<br>  | 11:46 | 1.820.771.00   |
| WILLI SI   | 1.826. | 090. | 37<br>5 1<br>*********************************** | UDER                                    | 9<br>N<br>A<br>PNT<br>8<br>4   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T = 66/05  L 1 S T = 86/07  DESCRIPTION OF ELEMENT  TACHO SENSOR (SPOOLING M- RIGHT) TAPE DECK COUNTER / TIMER TACHO SENSOR  | P01  ******** /14 * ****** /23 - 0 ******  P10 J05 P01   | 11:48 | 1.820.771.00  PA G E 100  PA G E 100  ELEMFNI NR.  |
| WILLI SI   | 1.826. | 090. | 37<br>   | G<br>UDER                               | 9<br>N<br>A<br>PNT   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T # 66/05  DIO # 83/07  DESCRIPTION OF ELEMENT  TACHO SENSOR (SPOOLING #- RIGHT) TAPE DECK COUNTER / THER  | P01  *******  /14 *  ******  /23 - 0  ******  P10  J05   | 11:48 | 1.820.771.00  P A G E 100  ELEMFNT NR.  1.820.771.00   |
| SIGNAL NAME  | 1.826. | 090. | 37 S I S I S I S I S I S I S I S I S I S         | G                                       | 9<br>N<br>A<br>PNT<br>8<br>4<br>8  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T * # 86/05  DESCRIPTION OF ELEMENT  TACHO SENSOR (SPOOLING F. RIGHT) TAPE DECK COUNTER / TIMER TACHO SENSOR  EXT. SENSORS TAPE OFCK PERIPHERY CONTR.  | P01  | 11:48 | 1.820.771.00  P A G E 100  ELEMFNT NR.  1.820.771.00   |
| SIGNAL NAME TC-TMR2 TO-TRSP TD-TRSPR   | 1.826. | 090. | 37 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S         | 1 G G G G G G G G G G G G G G G G G G G | 9 Ph Y B 4 B 9 9 A 9 10 10 11  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T ** 26/05  DESCRIPTION OF ELEMENT  TACHO SFNSOR (SPOOLING M. RIGHT) TAPE DECK COUNTER / TIMER TACHO SENSOR  EXT. SENSORS TAPE OFCK PERIPHERY CONTR. FROM GRP2O. ELMO6  EXT. SENSORS FROM GRP2O. ELMO6  MP-UNIT TO CONTROL   | P01  | 11:48 | 1.820.771.00  P A G E 100  ELEMFNT NR.  1.820.761.00  1.820.762.00   |
| SIGNAL NAME TC-TMR2 TO-TRSP TD-TRSPR   | 1.826. | 090. | 37 S T S T S T S T S T S T S T S T S T S         | 1 G G G G G G G G G G G G G G G G G G G | 9 PNT 8 4 8 9 9 10 10 11 17 7 7 7  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T *********************************  | P01  | 11:48 | 1.820.771.00  P A G E 100  ELEMFNT NR.  1.820.761.00  1.820.762.00   |
| SIGNAL NAME TO-TRSP TO-TRSP TD-TRSPR TD-TX TD-YTRSP  | 1.826. | 090. | 37 S T S T S T S T S T S T S T S T S T S         | 1 G G G G G G G G G G G G G G G G G G G | 9 PNT 8 4 8 9 9 A 9 10 10 11 7 7 17  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T  | P01 //14 * ******* //23 - 0 ****** //23 - 0 ***** //23 - 0 //24 - 0 //25 -  | 11:48 | 1.820.771.00  P A G E 100  ELEMFNI NR.  1.820.761.00  1.820.762.00   |
| SIGNAL NAME TO-TRSP TD-TRSPR TD-TX TD-YTRSP  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1 G G G G G G G G G G G G G G G G G G G | 9 PNT 8 4 8 9 9 10 10 11 17 7 7 7  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T *********************************  | P01  | 11:48 | 1.820.771.00  PAGE 100  PAGE 100  ELEMFNI AR.  1.820.761.00  1.820.762.00  1.820.762.00  |
| SIGNAL NAME TO-TRSP TO-TRSP TO-TX TD-YTRSP   | 1.826. | 090. | 37 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S 1 S         | 1 G G G G G G G G G G G G G G G G G G G | 9<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T = 86/05  DESCRIPTION OF ELEMENT  TACHO SENSOR (SPOOLING M- RIGHT) TAPE DECK COUNTER / TIMER TACHO SENSOR  EXT. SENSORS TAPE OFCK PERIPHERY CONTR. FROM GRP20. ELMO6  EXT. SENSORS FROM GRP20. ELMO6  MP-UNIT TO CONTROL  EXT. SENSORS FROM GRP20. FLMO6  MP-UNIT TO CONTROL  SSDA INT. SYNCHRONIZER TAPE DECK SERIAL INTERFACE   | P01  | 11:48 | 1.820.771.00  P A G E 100  ELEMFNY AR.  1.820.761.00  1.820.762.00  1.820.763.00  1.820.783.00  1.820.783.00  1.820.783.00   |
| SIGNAL NAME TC-TMR2 TD-TRSPR TD-TX TD-YTRSP TD-96G0 TDS-CLK  | 1.826. | 090. | 37 S I S I S I S I S I S I S I S I S I S         | 1 G G G G G G G G G G G G G G G G G G G | 9 Ph I 8 4 8 9 9 A 9 10 11 17 7 7 17 19 A 16 11 B  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T  | P01  | 11:48 | 1.820.771.00  P A G E 100  P A G E 100  ELEMFNI NR.  1.82C.761.00  1.820.762.00  1.82C.781.C0  1.82C.783.C0  1.82C.763.C0  1.82C.763.C0  1.82C.763.C0  |
| SIGNAL NAME IC-THR2  ID-TRSP  ID-TRSP  ID-YTRSP  ID-96G0 IDS-GLK  ICS-CTS  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 9 9 10 10 11 7 7 17 2 17 19 A 16 11 B 15   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L I S T  | P01 //14 * ****** //23 - 0 ******  P10 J05 P01 J05 P01 J06 P01 J07 P06 P01 J07 P06 P01 J07 J08 J09 J08 J09 J08 J09 J08 J09 J08   | 11:48 | 1.820.771.00  P A G E 100  P A G E 100  1.820.761.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00   |
| SIGNAL NAME TO-TRSP TO-TRSP TD-TX TD-YTRSP TDS-GLK TDS-CLK TDS-DTR   | 1.826. | 090. | 37 S I S I S I S I S I S I S I S I S I S         | 1                                       | 9 PNY  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T * 26/05  DESCRIPTION OF ELEMENT  TACHO SENSOR SPOOLING M. RIGHT) TAPE DECK COUNTER / TIMER TACHO SENSOR  EXT. SENSORS TAPE OFCK PERIPHERY CONTR. FROM GRP2O. ELMO6  MP-UNIT TO CONTROL  EXT. SENSORS FROM GRP2O. FLMO6  MP-UNIT TO CONTROL  EXT. SENSORS FROM GRP2O. FLMO6  MP-UNIT TO CONTROL  EXT. SENSORS FROM GRP2O. FLMO6  MP-UNIT TO CONTROL  TAPE DECK SERIAL INTERFACE  TAPE DECK SERIAL INTERFACE | P01  | 11:48 | 1.820.771.00  PA 6E 100  PA 6E 100  ELEMFNT NR.  1.820.761.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00                              |
| SIGNAL NAME TC-TMR2 TO-TRSPR TD-TX TD-YTRSP TDS-GLK TDS-CTS TDS-CTS TDS-CTS  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 8 9 9 10 10 11 17 7 7 17 19 A 16 11 18 15 11 A 17 17 19 A 16 11 18 15 11 A 17 17 19 A 17 1 | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T  | P01 //14 * ****** //23 - 0 ******  P10 J05 P01 J05 P01 J07 P06 P01 J08 J09 J08 J09 J08 J09 J08 J09 J08   | 11:48 | 1.820.771.00  PA 6E 100  PA 6E 100  ELEMFNT NR.  1.820.761.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00                              |
| SIGNAL NAME IC-THRZ ID-TRSPR ID-TRSP I | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 9 9 10 10 11 7 7 7 17 17 16 11 18 15 11 14 10 8 6  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T * * * * * * * * * * * * * * * * * *  | P01 //14 * ****** //23 - 0 ***** //23 - 0 //23 - | 11:48 | 1.820.771.00  PA 6E 100  PA 6E 100  ELEMFNT NR.  1.820.761.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00                              |
| SIGNAL NAME TC-TMR2 TO-TRSP TD-TRSPR TD-TX TD-YTRSP TD-96G0 TDS-CLK  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 9 9 A 9 9 10 10 11 17 7 7 17 19 A 16 11 B 15 11 A 10 A 6 6 6 6 3   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L I S T  | P01  //14 *  ******  //23 - 0  *****  P10  J05  P01  P06  P01  J07  P06  P01  P06  P01  P06  P01  P07  P08  P09  P09  P09  P09  P09  P09  P09   | 11:48 | 1.820.771.00  PA G E 100  PA G E 100  PA G E 100  1.820.761.00  1.820.771.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00 |
| SIGNAL NAME IC-THR2 ID-TRSPR ID-TRSPR ID-TX ID-YTRSP ID-96G0 IDS-CLK ICS-CTS IDS-DTR IDS-RX IDS-TX ITL-A0 ITL-CS ITL-D0  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 8 9 9 10 10 11 17 7 7 7 17 19 A 16 11 18 15 11 A 10 A 14 10 B 6 6 6 3 3 3 7 7  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T 20000000000000000000000000000000000  | P01  | 11:48 | 1.820.771.00  PA G E 100  PA G E 100  PA G E 100  1.820.761.00  1.820.771.00  1.820.762.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00 |
| SIGNAL NAME TC-TMR2  TO-TR SPR  TD-TX TD-YTRSP  TDS-CLK   | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT   8 4 8 9 9 A 9 9 10 10 11 17 7 7 17 16 11 18 15 11 A 10 B 6 6 6 6 3 3 3 7 7 7 8   | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T  | P01  //14 *  ******  //23 - 0  *****  P10  J05  P01  P06  P01  J07  P06  P01  J08  J09  J08  J09  J08  J09  P04  P04   | 11:48 | 1.820.771.00<br>PAGE100  |
| SIGNAL NAME TIC-THR2 TIC-TRSP TIC-TRSP TIC-TX TIC-TX TIC-YTRSP TIC-GCO TICS-CLK TICS-CTS  | 1.826. | 090. | 37 37 37 37 37 37 37 37 37 37 37 37 37 3         | 1                                       | 9 PNT 8 4 8 9 9 10 10 11 17 7 17 17 17 16 11 18 15 11 14 10 6 6 6 3 3 3 7 7 7 8 8 8 5 5  | E 2 C | • 1  | H I R E       | TACHO SENSOR  L 1 S T  | P01  //14 *  ****** //23 - 0  ******  P10  J05  P01  J05  P01  J07  P06  P01  J07  P06  P01  J07  P06  P01  J07  P06  P01  J07  P00  P04  P04  P04   | 11:48 | 1.820.771.00  PA G E 100  PA G E 100  ELEMFNY NR.  1.820.761.00  1.820.762.00  1.820.763.00  1.820.763.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00              |

PUBLISHED: 08/86

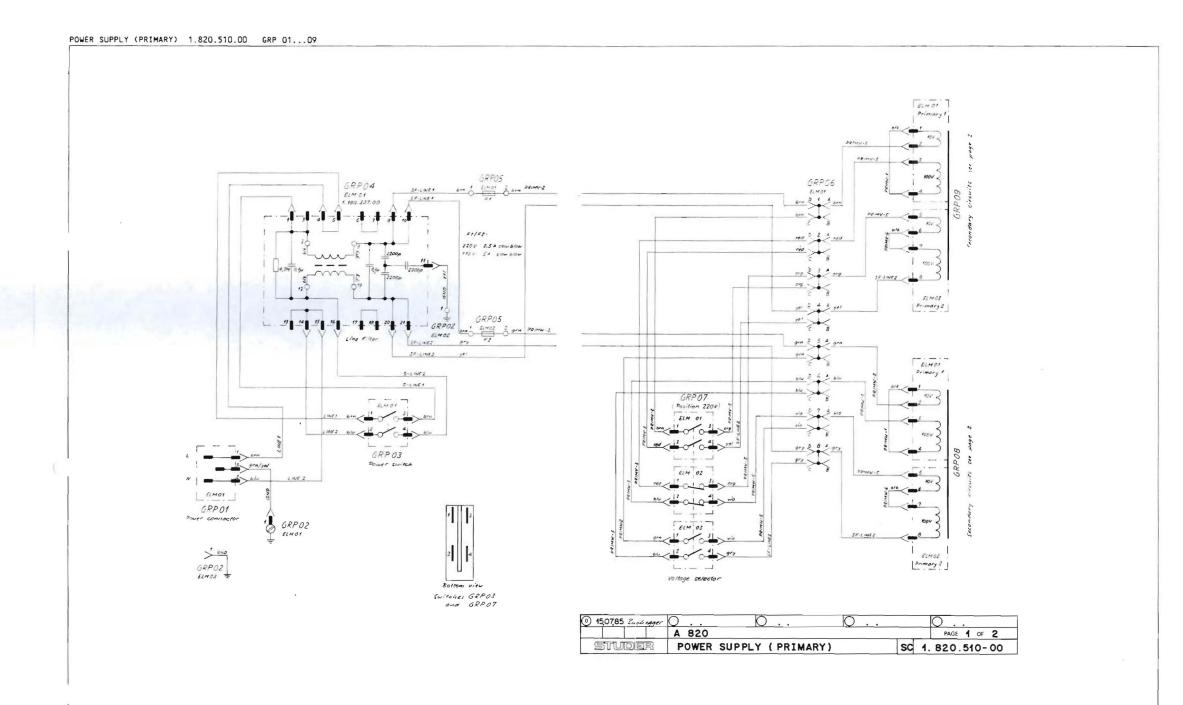
| SIGNAL NAME  | COLOR    | MI   | ASY GRE   | EL   | PNT   | S   | LV    | TYPE                                   | DESCRIPTION OF ELEMENT   |  | REMARK | ELFMENT MR.  |
|--|----------|------|---|--|---|-----|-------|--|--|--|--------|--|
| TL-D5  |          | _    | 50<br>52  | 4  | 12  | =   |       |  | CONNECTOR LCO DISPLAY UNIT<br>FROM GRP50. ELMO4  | P04  |        |  |
| TL-D6  |          |      | 5 C<br>5 2  | 4  | 13  | -   |       |  | CONNECTER LCD DISPLAY UNIT<br>FROM GRP50. ELMO4  | P04  |        |  |
| TL-07  |          |      | 5C<br>52  | 4  | 14  | -   |       |  | CONNECTOR LCO DISPLAY UNIT<br>FROM GRP50. ELMO4  | PD4  |        |  |
| TL-ENB   |          |      | 50<br>52  | 4  | 4 4   | -   |       |  | CONNECTER LCD DISPLAY UNIT<br>FROM GRP50. ELMO4  | P04  |        |  |
| TL-RESET   |          |      | 50<br>52  | 4  | 15  | -   |       |  | CONNECTOR LCD DISPLAY UNIT<br>FROM GRP50. ELM04  | P04  |        |  |
| TL-WR  |          |      | 50<br>52  | 4  | 5<br>5  | -   |       |  | CONNECTER LCD OISPLAY UNIT<br>FROM GRP50+ ELMO4  | P04  |        |  |
| TP-A   |          |      | 5C<br>51  | 2<br>1   | 20  | -   |       |  | CONNECTOR COMMAND UNIT<br>FROM GRP50.ELMO2   | P03  |        |  |
| T #-ADRO   |          |      | 2 C<br>2 O  | 48   | 2 8 B   | -   |       |  | MASTER SERIAL INTERFACE<br>MP-UNIT MASTER  | J09<br>J10   |        | 1.820.753.C<br>1.820.784.0   |
|  |          |      | 20  | 50<br>51   | 31<br>24A   |     |       |  | SMPTE/EBU INTERFACE<br>MASTER PERIPHERY CONTROLLER   | J11<br>J12   |        | 1.820.751.0  |
| TM-ADR1  |          |      | 20<br>20<br>20<br>20                                    | 49<br>49<br>50   | 28A<br>3C<br>30   | -   |       |  | MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER   | J09<br>J10<br>J11<br>J12   |        | 1.820.753.C<br>1.820.784.C<br>1.820.751.0<br>1.820.728.G                               |
| T#-ADR2  |          |      | 20<br>20<br>20<br>20<br>20                              | 48<br>49<br>50   | 278<br>29<br>29<br>22A  | -   |       |  | MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER   | J09<br>J10<br>J11<br>J12   |        | 1.820.753.C<br>1.820.784.0<br>1.820.751.0<br>1.820.728.0                               |
| TP-AUR3  |          |      | 2C<br>20  | 48   | 238   | -   |       |  | MASTER SERTAL INTERFACE  | J09  |        | 1.820.753.0  |
|  |          |      | 20  | 50   | 17  | _   |       |  | SMPTE/ERU INTERFACE  | J11  |        | 1.820.751.00   |
| 1 ⊭-8<br>  |          |      | 50<br>51  | 1  | 18  | -   |       |  | CONNECTOR COMMAND UNIT<br>FROM GRP50.ELMO2   | P03  |        |  |
| ™-BUSS₩<br>  |          | ~-   | 20<br>20  | 50<br>   | 8<br>15<br>   | -   |       |  | MP-UNIT MASTER SMPTE/ERU INTERFACE   | 711<br>710   |        | 1.820.784.0  |
| r⊭-c   |          |      | 5C<br>51  | 1  | 21  | _   |       |  | CDNNECTER CEMMAND UNIT<br>FROM GRP50.ELMO2   | P03  |        |  |
| TP-CUE1  |          |      | 48<br>48<br>49  | 1<br>2<br>1  | 20<br>5<br>5  |     |       |  | FROM GRP50, ELMO3<br>CONNECTOR EDIT ASSEMBLY<br>FROM GRP48, ELMO2  |  |        |  |
| WILLIS   | TUDER AG | **** | 50<br>  | 3<br><br>G   |   | *** | ****  | # I R E I                              | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6/   | ******<br>02/23 -  |        | P A G F 102  |
|  | 1.820.   | 090. | 50<br>  | 3<br><br>G<br>****<br>UDER   | *****<br>N A<br>*****<br>A E  | 2C  | * * T | ************                           | CONNECTOR PUSHBUTTON ASSEMBLY  I S I * 86/   | 05/14  | 00     | P A G F 102  |
| SIGNAL NAME  | 1.820.   | 090. | 50<br>S I<br>************************************       | 3<br>  | PNT 22 7 7 22   | 2C  | * * T | ************************************** | DESCRIPTION OF ELEMENT FROM GRPSO. ELMO3 CONNECTOR PUSHBUTTON ASSEMBLY FROM GRPSO. ELMO3 CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP48. ELMO2 CONNECTOR PUSHBUTTON ASSEMBLY   | 05/14<br>05/14<br>05/13 -  | 00     |  |
| SIGNAL NAME  | 1.820.   | 090. | 50<br>************************************              | 3<br>****<br>G<br>****<br>UDER<br>****   | PNT 22 7 7 22   | 2C  | * * T | ************************************** | DESCRIPTION OF ELEMENT FROM GRP50. ELMO3 CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50. ELMO3 CONNECTOR EDIT ASSEMBLY FROM GRP48. ELMO2 CONNECTOR PUSHBUTTON ASSEMBLY MP—UNIT MASTER  | 05/14<br>05/14<br>02/23 -<br>02/23 - | 00     | ELEMENT NR.  |
| SIGNAL NAME M—CUE2   | 1.820.   | 090. | 50 S I I I I I I I I I I I I I I I I I I                | 3<br>  | PNT 22 7 7 22   | 2C  | * * T | ************************************** | DESCRIPTION OF ELEMENT FROM GRP50. ELMO3 CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP48. ELMO2 CONNECTOR PUSHBUTTON ASSEMBLY MP-UNIT MASTER MP-UNIT MASTER   | 05/14<br>************************************  | 00     | 1.820.784.00   |
| IGNAL NAME  M-CUE2  M-C3C7K  M-C614K   | 1.820.   | 090. | 50 S I S I S I S I S I S I S I S I S I S                | 3<br>****<br>G<br>****<br>****<br>ELM<br>1<br>2<br>1<br>3  | PNT 22 7 7 22   | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6//  * 83//  DESCRIPTION OF ELEMENT  FROM GRP50. ELMO3 CONNECTOR EDIT ASSEMBLY FROM GRP48. ELMO2 CONNECTOR PUSHBUTTON ASSEMBLY  MP—UNIT MASTER  MP—UNIT MASTER   | P02 J10 J10  | 00     | 1.820.784.00<br>1.820.784.00   |
| FIGNAL NAME  M-C3C7K  M-C3C7K  M-C614K  M-C76K  M-C9600  | 1.820.   | 090. | 50 S I S I S I S I S I S I S I S I S I S                | 3<br>***** G<br>*****<br>****<br>ELM<br>1<br>2<br>1<br>3<br>49<br>49<br>49   | PNT   | 2C  | * * T | ************************************** | DESCRIPTION OF ELEMENT FROM GRP50. ELMO3 CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50. ELMO3 CONNECTOR POIT ASSEMBLY FROM GRP48. ELMO2 CONNECTOR PUSHBUTTON ASSEMBLY MP—UNIT MASTER MP—UNIT MASTER MP—UNIT MASTER  | P02 J10 J10 J10  | 00     | 1.820.784.00<br>1.820.784.00   |
| M-C3C7K M-C614K M-C76K M-C9600   | 1.820.   | 090. | 500 * \$1  OC * \$7  ASY GRP  48 48 49 50 . 2C 2C 2C 20 | 3<br>****<br>G<br>****<br>****<br>***<br>1<br>2<br>1<br>3<br>49<br>49<br>49<br>49<br>2<br>1  | PNT 22 7 7 22 22 7 16 17 22   | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  ***********************************   | P02 J10 J10 J10  | 00     | 1.820.784.00<br>1.820.784.0<br>1.820.784.0   |
| M-C3C7K M-C614K M-C76K M-C9600   | 1.820.   | 090. | 500   | 3<br>****<br>****<br>UDER<br>***<br>ELM<br>1<br>2<br>1<br>3<br>49<br>49<br>49<br>49<br>49<br>11<br>15<br>16<br>48<br>2   | N A E E E E E E E E E E E E E E E E E E   | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6/ * 83/  DESCRIPTION OF ELEMENT  FROM GRPSO. ELMOS CONNECTOR EDIT ASSEMBLY FROM GRP48. ELMOS CONNECTOR PUSHBUTTON ASSEMBLY MP—UNIT MASTER  FROM GRP50. ELMOS  GRANG GRP50. ELMOS  FROM GRP20. ELMOS   | P02  J10  J10  J10  P03  P16  J09  P02  P16  P02   | 00     | 1.820.784.00<br>1.820.784.00<br>1.820.784.00   |
| SIGNAL NAME TM-CUE2  TM-C3C7K  M-C314K H-C76K TM-C9600 M-D TH-DADRO  | 1.820.   | 090. | 500   | 3<br>****<br>****<br>****<br>***<br>***<br>***<br>***  | ******  *****  *****  *****  *****  ****  | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6/ * 83/  DESCRIPTION OF ELEMENT  FROM GRPSO. ELMOS CONNECTOR EDIT ASSEMBLY FROM GRP48. ELMOS CONNECTOR PUSHBUTTON ASSEMBLY MP—UNIT MASTER  FROM GRP50. ELMOS  GRANG GRP50. ELMOS  FROM GRP20. ELMOS   | P02  J10  J10  J10  P03  P15  P16  J09  P09  | 00     | 1.820.784.00<br>1.820.784.00<br>1.820.784.00   |
| M-C3G7K M-C614K M-C76K M-C9600 M-D M-DADR0   | 1.820.   | 090. | 500 * ST  | 3<br>**** G<br>***** ELM 1 2 1 3 49 49 49 49 11 15 16 48 2 1 15 48 1   | 22 7 7 22 22 22 16 17 19 19 8A 19 19 17 7A 17   | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6/ * 83/**  DESCRIPTION OF ELEMENT  FROM GRP5O. ELMO3  CONNECTOR FOIT ASSEMBLY  FROM GRP48. ELMO2  CONNECTOR PUSHBUTTON ASSEMBLY  MP—UNIT MASTER  MP—UNIT MASTER  MP—UNIT MASTER  CONNECTOR COMMAND UNIT  FROM GRP5O. ELMO2  DISPLAY ORIVER  PARALLEL REMOTE CONTROL  MASTER SERIAL INTERFACE  FROM GRP2O. ELM15  DISPLAY DRIVER  MASTER SERIAL INTERFACE  FROM GRP2O. ELM15   | P02 J10 J10 J10 P03 P16 J09 P01 P15 J09 P01  | 00     | 1.820.784.00<br>1.820.784.00<br>1.820.784.00   |
| M-C3C7K M-C614K M-C76K M-C9600 M-D P-DADR1 M-DADR2   | 1.820.   | 090. | 500   | 3<br>****<br>G***<br>WUDER<br>***<br>11<br>21<br>3<br>49<br>49<br>49<br>49<br>21<br>15<br>16<br>48<br>21<br>15<br>16<br>48<br>11<br>15<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16<br>16   | ****** A & & ***** A & & ***** A & & ****** A & & ****** A & & & ****** A & & ***** A & ****** A & ****** A & ***** A & ***** A & ****** A & ****** A | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * E6/ * 83/**  DESCRIPTION OF ELEMENT  FROM GRPSO. ELMOS CONNECTGR EDIT ASSEMBLY FROM GRPSO. ELMOS CONNECTOR PUSHBUTTON ASSEMBLY MP—UNIT MASTER  DISPLAY ORIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRPSO. ELMIS  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRPSO. ELMIS  DISPLAY ORIVER MASTER SERIAL INTERFACE FROM GRPSO. ELMIS   | P02 J10 J10 J10 J10 J10 P03 P15 P16 J09 P01 P15 J09 P01 P15 J09 P01 P15 J09 P01 P15 P16 J09 P01 P15 P16 P17 P17 P18 P18 P18 P18 P19  | 00     | 1.820.784.0<br>1.820.784.0<br>1.820.784.0<br>1.820.784.0<br>1.820.753.0<br>1.820.753.0 |
| WILLIS SIGNAL NAME TH-CUE2  IN-C3G7K IM-C614K IM-C76K IM-C9600 IM-D IM-DADRO IM-DADRO IM-DADRO IM-DADRO IM-DATAO | 1.820.   | 090. | 500   | G WUDER WELM 1 2 1 3 4 9 4 9 4 9 4 9 4 9 1 1 1 5 6 4 8 8 1 1 1 5 6 4 8 4 9 5 0 5 1 1 1 5 6 4 8 4 9 9 0 5 1 1 2 1 1 5 6 4 8 4 9 9 0 5 1 1 2 1 1 5 6 4 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 4 9 9 0 5 1 1 2 1 5 6 4 8 8 9 9 0 5 1 1 2 1 5 6 4 8 8 9 9 0 5 1 1 2 1 5 6 4 8 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 2 1 5 6 4 8 9 9 0 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ******  *****  *****  *****  *****  ****  | 2C  | * * T | ************************************** | CONNECTOR PUSHBUTTON ASSEMBLY  I S T * 86/**  * 83/**  DESCRIPTION OF ELEMENT  FROM GRPSO. ELMOS  CONNECTOR PUSHBUTTON ASSEMBLY  FROM GRPSO. ELMOS  CONNECTOR PUSHBUTTON ASSEMBLY  MP—UNIT MASTER  MP—UNIT MASTER  MP—UNIT MASTER  MP—UNIT MASTER  CONNECTOR COMMAND UNIT  FROM GRPSO. ELMOS  DISPLAY ORIVER  PARALLEL REMOTE CONTROL  MASTER SERIAL INTERFACE  FROM GRPZO. ELMIS  DISPLAY DRIVER  MASTER SERIAL INTERFACE  FROM GRPZO. ELMIS  DISPLAY ORIVER  MASTER SERIAL INTERFACE  FROM GRPZO. ELMIS  OISPLAY ORIVER  MASTER SERIAL INTERFACE  MASTER SERIAL INTERFACE  MASTER SERIAL INTERFACE  MASTER PENIPHERY CONTROLLER  FROM GRPZO. ELMIG | P02  J10  J10  J10  J10  J10  J10  J10  J  | 00     | 1.820.784.00 1.820.784.00 1.820.784.00 1.820.783.00                                    |

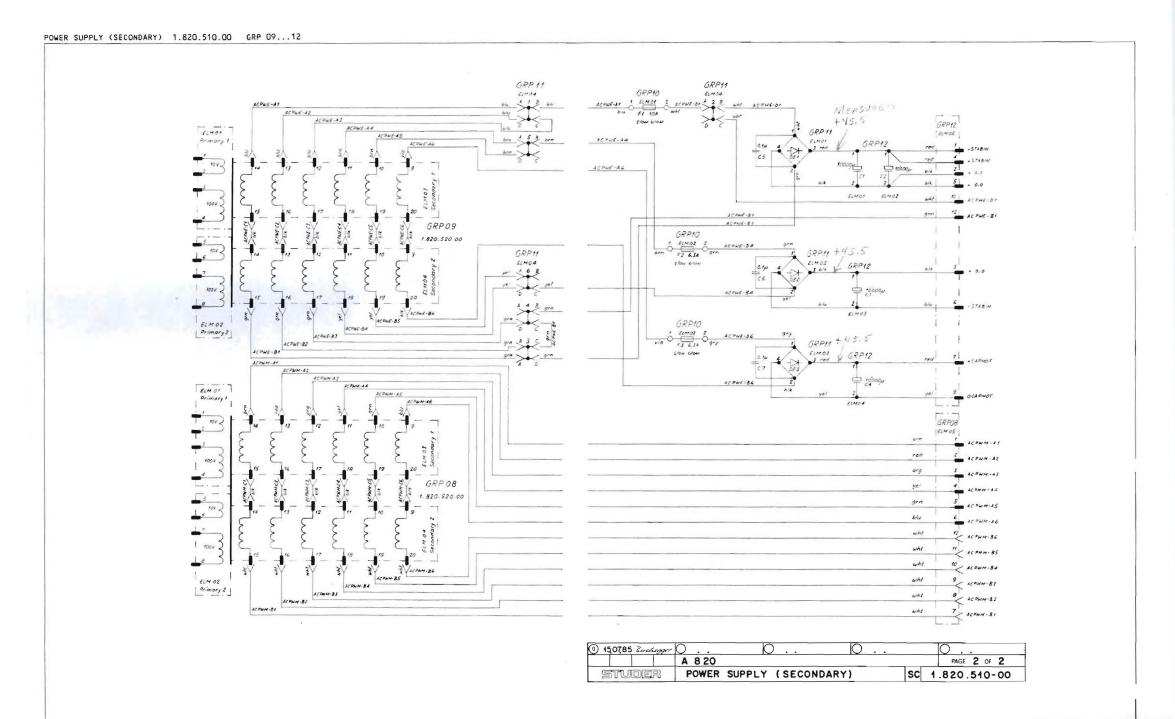
| SIGNAL NAME COLOR HI ASY GRP ELM PNT S   | LY TYPE DESCRIPTION OF ELEMENT   | REMARK  | ELEMENT NR.  |
|--|--|---|--|
| TM-OATA3 20 15 33 20 16 33 20 48 31A 20 49 36 20 50 36 20 51 29A 27 2 33 50 1 33   | OISPLAY ORIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE MP-WHIT MASTER SMPTE/FEU INTERFACE MASTER PERIPHERY CONTROLLER FROM GRP20. ELM16 FROM GRP20. ELM15  | P15<br>P16<br>J09<br>J10<br>J11<br>J12<br>P02<br>P01                    | 1.820.753.00<br>1.820.784.00<br>1.820.751.00<br>1.820.728.00 |
| TH-DATA4 20 15 31 2C 16 31 20 48 30B 20 49 35 2C 50 35 2C 51 28A 27 2 31 50 1 31   | OISPLAY ORIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER FROM GRP20. ELM16 FROM GRP20. ELM15  | P15<br>P16<br>J09<br>J10<br>J11<br>J17<br>P07<br>P01                    | 1-820-753-00<br>1-820-784-00<br>1-820-751-00<br>1-820-728-00 |
| TM-DATA5 20 15 29 2C 16 29 20 48 30A 20 50 34 20 51 27A 27 2 29 50 1 29  | OISPLAY ORIVER PAR ALLEL REMOTE CONTROL MASTER SERIAL INTERFACE MP-UNIT NASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER FROM GRP2O. ELM16 FROM GRP2O. ELM15   | P15<br>P16<br>J09<br>J10<br>J11<br>J12<br>P07<br>P01                    | 1.820.753.00<br>1.820.784.00<br>1.820.751.00<br>1.820.728.00 |
| TP-DATA6 2C 15 27 2C 16 27 2C 48 298 2C 49 33 2C 50 33 2C 51 26A 27 2 27 50 1 27   | OISPLAY DRIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER FROM GRP20. ELM16 FROM GRP20. ELM15  | P15<br>P16<br>J09<br>J10<br>J11<br>J12<br>P02<br>P01                    | 1.820.753.00<br>1.820.784.00<br>1.820.751.00<br>1.820.728.00 |
| TM-DATA7 20 15 25 20 46 25 20 48 29A 20 49 32 20 50 32 20 51 25A 27 2 25 50 1 25   | DISPLAY CRIVER PARALLEL REMOTE CONTRIL MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER FROM GRPZO. ELM16 FROM GRPZO. ELM15  | P15<br>P16<br>J09<br>J10<br>J11<br>J12<br>P02<br>P01                    | 1.820.753.C0<br>1.820.784.00<br>1.820.751.C0<br>1.82C.728.00 |
| TR-DENB 20 15 13 2C 16 13 2C 48 5A 27 2 13 50 1 13   | OISPLAY DRIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O, ELM16 FROM GRP2O, ELM15   | P15<br>P16<br>J09<br>P02<br>P01   | 1.820.753.CO   |
| TM-OP 50 2 19 51 1 19  | CONNECTOR COMMAND UNIT<br>FROM GRP50-ELM02   | P03   |  |
| TM-ORENS 20 49 12 20 50 12   | MP-UNIT MASTER<br>SMPTE/EBU INTERFACE  | J10<br>J11  | 1.820.784.00   |
| SIGNAL NAME COLOR MI ASY GRP ELM PNT S  TM-DRES 20 15 9 20 16 9 20 48 3A 27 2 9  | LV TYPE DESCRIPTION OF ELEMENT  DISPLAY DRIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRPZO. ELMI6   | P15<br>P16<br>J09<br>P02  | ELEMENT NR.  |
| TM-DRh 20 15 11 20 16 11 20 48 4A  | FROM GRP20. ELM15  DISPLAY DRIVER PARALLEL REMOTE CONTROL  | P01   | 1.870.753.00   |
| 27 2 11<br>50 1 11   | MASTER SERIAL INTERFACE<br>FROM GRP2O. ELM16<br>FROM GRP2O. ELM15  | P15<br>P16<br>J09<br>P02<br>P01   |  |
|  | FROM GRP20. ELM16  | P16<br>J09<br>P02   | 1.870.753.00   |
| TP-DSL4 20 15 7<br>20 48 1A  | FROM GRP2O. ELM16 FROM GRP2O. ELM15 DISPLAY DRIVER MASTER SERIAL INTERFACE   | P16<br>J09<br>P02<br>P01<br>  | 1.820.753.C0<br>1.820.753.C0                                 |
| TM-DSL5 20 16 7<br>20 17 7<br>20 48 1A<br>50 1 7<br>20 16 7<br>20 48 2A  | FROM GRP2O, ELM16 FROM GRP2O, ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O, ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE   | P16<br>J09<br>P02<br>P01<br>  | 1.820.753.00   |
| TM-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 20 48 2A 27 2 7  TM-D0  50 2 35 51 1 35  TM-D1  50 2 34 51 1 34   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O.ELM02  CONNECTOR COMMANO UNIT FROM GRP5O.ELM02   | P16<br>J09<br>P02<br>P01<br>P15<br>J09<br>P01                           | 1.820.753.00   |
| TM-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 20 48 2A 27 2 7  TM-DD  50 2 35 51 1 35  TM-D1  50 2 34 51 1 34  TM-D2  50 2 33 51 1 32   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  | P16 J09 P02 P01  P15 J09 P01  P16 J09 P02  P03                          | 1.820.753.00   |
| TM-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TM-D0  50 2 35 51 1 35  TM-D1  50 2 34 51 1 34  TM-D2  50 2 32 51 1 32  TM-D3  50 2 32 51 1 32   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O.ELM02   | P16 J09 P02 P01  P15 J09 P01  P16 J09 P02  P03  P03                     | 1.820.753.00   |
| TP-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 20 48 2A 27 2 7  TP-D0  50 2 35 51 1 35  TP-D1  50 2 34 51 1 32  TM-D2  50 2 32 51 1 32  TM-D3  50 2 32 51 1 32  TM-D4  50 2 31 51 1 32   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02   | P16 J09 P02 P01  P15 J09 P01  P16 J09 P03  P03  P03                     | 1.820.753.00   |
| TP-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TP-D0  50 2 35 51 1 35  TP-D1  50 2 34 51 1 34  TM-D2  50 2 32 51 1 32  TM-D3  50 2 32 51 1 32  TM-D4  50 2 31 51 1 32  TM-D4  50 2 31 51 1 31  TP-D5  50 2 31 51 1 31   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTCR COMMANO UNIT FROM GRP5O. ELM02   | P16 J09 P02 P01 P15 J09 P01 P16 J09 P02 P03 P03 P03 P03                 | 1.820.753.00   |
| TP-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TP-D0  50 2 35 51 1 35  TP-D1  50 2 34 51 1 34  TR-D2  50 2 33 51 1 32  TM-D4  50 2 31 51 1 31  TP-D5  50 2 30 51 1 30  TP-D5  50 2 30 51 1 30  TP-D5  50 2 30 51 1 30   | FROM GRP2O. ELM16 FROM GRP2O. ELM16 DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  | P16 J09 P02 P01  P15 J09 P01  P16 J09 P02  P03  P03  P03  P03           | 1.820.753.00   |
| TP-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TP-D0  50 2 35 51 1 35  TP-D1  50 2 34 51 1 34  TM-D2  50 2 32 51 1 32  TM-D4  50 2 31 51 1 31  TP-D5  50 2 30 51 1 30                                 | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMAND UNIT FROM GRP5O. ELM02   | P16 J09 P02 P01  P15 J09 P01  P16 J09 P02  P03  P03  P03  P03  P03  P03 | 1.820.753.00   |
| TP-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TP-D0  50 2 35 51 1 35  TP-D1  50 2 34 51 1 34  TM-D2  50 2 32 51 1 32  TM-D3  50 2 32 51 1 32  TM-D4  50 2 31 51 1 31  TP-D5  50 2 31 51 1 31  TP-D5  50 2 30 51 1 30  TM-D6  50 2 29  TM-D7  50 2 29  TM-D7  50 2 28 51 1 29  TM-D7  50 2 27 51 1 28 | FROM GRP2O. ELM16 FROM GRP2O. ELM16 FROM GRP2O. ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  COMMECTOR COMMANO UNIT FROM GRP5O. ELM02  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02  COMMECTOR COMMANO UNIT FROM GRP5O. ELM02  CONNECTOR COMMANO UNIT FROM GRP5O. ELM02 | P16 J09 P02 P01 P15 J09 P01 P16 J09 P03 P03 P03 P03 P03 P03 P03 P03 P03 | 1.820.753.00   |
| TM-DSL4  20 15 7 20 48 1A 50 1 7  TM-DSL5  20 16 7 2C 48 2A 27 2 7  TM-D0  50 2 35 51 1 35  TM-D1  50 2 34 51 1 34  TM-D2  50 2 33 51 1 32  TM-D3  50 2 31 51 1 32  TM-D4  50 2 31 51 1 31  TM-D5  50 2 30 51 1 30  TM-D6  50 2 30 51 1 30  TM-D7  50 2 29  TM-D7  50 2 28 51 1 29  TM-D7  50 2 28 51 1 28  TM-D7  50 2 27 | FROM GRP2O, ELM16 FROM GRP2O, ELM16 FROM GRP2O, ELM15  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O, ELM15  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O, ELM16  CONNECTOR COMMANO UNIT FROM GRP5O, ELM02   | P16 J09 P02 P01  P15 J09 P01  P16 J09 P02  P03  P03  P03  P03  P03  P03 | 1.820.753.00   |

| SIGNAL NAME  | COLOR   | нт   | ASY GRE  | , FI 1   | 4 PNT                                    | ,   | į v  | TYPE                                    | DESCRIPTION OF ELEMENT   |   | REMARK        | ELEMENT NR.  |
|--|---------|------|--|--|--|-----|------|---|--|---|---------------|--|
| TM-ENB   |         |      | 20   | 48   | 27A                                      | -   |      |   | MASTER SERIAL INTERFACE  | J09   |               | 1.820.753.0  |
|  |         |      | 20<br>20<br>20   | 49<br>50<br>51   | 28<br>28<br>21 A                         |     |      |   | MP-UNIT MASTER<br>SMPTE/EBU INTERFACE<br>MASTER PERIPHERY CONTROLLER   | J10<br>J11<br>J12   |               | 1.820.784.0<br>1.820.751.0<br>1.820.728.0  |
| TM-ENG   |         |      | 48<br>48<br>49<br>49<br>50   | 1<br>2<br>1<br>2<br>3  | 12<br>4<br>4<br>2<br>12                  |     |      |   | FROM GRPSO, ELMO3 CONNECTER EDIT ASSEMBLY FROM GRP48, ELMO2 MIRE FIELD CONNECTOR PUSHBUITON ASSEMBLY   | PO2   |               |  |
| TF-EN1   |         |      | 5C<br>51   | 2  | 9  | ~   |      |   | CONNECTER COMMANO UNIT<br>FROM GRP50-ELM02   | P03   |               |  |
| TH-EN2   |         |      | 50<br>51   | 2  | 8  | -   |      |   | CONNECTER COMMANO UNIT<br>FROM GRP50.ELMO2   | P03   |               | ************   |
| TF-EN3   |         |      | 5C<br>51   | 2  | 7  | -   |      |   | CONNECTER COMMANO UNIT<br>FROM GRP50.ELMO2   | P03   |               |  |
| IP-EN4   |         |      | 50<br>51   | 2<br>1   | é<br>6                                   | -   |      |   | CONNECTOR COMMAND UNIT<br>FROM GRP50velh02   | P03   |               |  |
| T #-F  |         |      | 50<br>51   | 2  | 23                                       | -   |      |   | CONNECTER COMMAND UNIT<br>FROM GRP50.ELMO2   | P03   |               |  |
| TF-G   |         |      | 5C<br>51   | 2  | 25                                       | -   |      |   | CONNECTOR COMMAND UNIT<br>FROM GRP50.ELM02   | P03   |               |  |
| TF-IAORO   |         |      | 2C<br>20   | 15<br>16   | 20<br>20                                 | -   |      |   | DISPLAY DRIVER<br>PARALLEL REMOTE CONTROL  | P15   |               |  |
|  |         |      | 20<br>27<br>50   | 48<br>2<br>1   |  |     |      |   | MASTER SERIAL INTERFACE<br>FROM GRP2O. ELM16<br>FROM GRP2O. ELM15  | J09<br>P02<br>P01   |               | 1.820.753.00   |
| T#-IACR1   |         |      | 20   | 15<br>48   | 18<br>78                                 | -   |      |   | DISPLAY DRIVER<br>MASTER SERIAL INTERFACE  | P15<br>J09  |               | 1.820.753.00   |
| IK-IADR2   |         |      | 50   | 1  | 18                                       | -   |      |   | FROM GRP20. ELM15 DISPLAY DRIVER   | P01   |               |  |
|  |         |      | 2C<br>50   | 48   | 68                                       | _   |      |   | MASTER SERIAL INTERFACE<br>FROM GRP20. ELM15   | J09<br>P01  |               | 1.820.753.00   |
| TP-IENO  |         |      | 20<br>20<br>20   | 15<br>16<br>48   | 14<br>14<br>58                           |     |      |   | DISPLAY DRIVER<br>PARALLEL REMOTE CONTROL<br>MASTER SERIAL INTERFACE   | P15<br>P16<br>J09   |               | 1.820.753.00   |
|  |         |      | 27<br>50   | 2  | 14                                       | 725 |      |   | FROM GRP20. ELM16<br>FROM GRP20. ELM15   | P02<br>P01  |               |  |
| TM- IRES   |         | (405 | 20   | 15<br>16   | 1 C<br>1 O                               | -   |      |   | DISPLAY ORIVER PARALLEL REMOTE CONTROL   | P15   |               |  |
|  |         |      | 20   |  |  |     |      |   |  |   |               |  |
|  | UDER AG | **** | 20<br>27<br>50<br>   | 48<br>2<br>1<br>   | 38<br>1C<br>1C                           | *** | **** | N I R E                                 | MASTER SERIAL INTERFACE FROM GRP2O. ELM15 FROM GRP2O. ELM15 L 1 S T  | J09<br>P02<br>P01   | <br>• 11:48 4 |  |
| SIGNAL NAME  | ******  | 090. | 20<br>27<br>5C<br>   | 48<br>2<br>1<br>G<br>UDER  | 1C<br>1C<br>N A                          | 20  | **** | • | MASTER SERIAL INTERFACE FROM GRP2O. ELM15 FROM GRP2O. ELM15  1 S T   | J09<br>P02<br>P01<br>   | ********      | PAGF106  |
| SIGNAL NAME  | 1.920.  | 090. | 20<br>27<br>5C<br>   | 48<br>2<br>1<br>   | 1C<br>1C<br>N A 8                        | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15 FROM GRP2O. ELM15  1   | J09<br>P07<br>P01<br>   | 00            | P A G F 106 4  |
| SIGNAL NAME  | 1.920.  | 090. | 20<br>27<br>5C<br>   | 48<br>2<br>1<br>   | 1C<br>1C<br>N A 8                        | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09<br>P02<br>P01<br>   | 00            | P A G F 106 6  |
| SIGNAL NAME TH-IRG   | 1.920.  | 090. | 20<br>27<br>5c<br>S I II<br>000 • ST<br>20<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48 2 1 48 49 15 16 48 2 1 15 48  | 1C<br>1C<br>1C<br>                       | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S T   | J09<br>P07<br>P01<br>55/14<br>55/14<br>52/73 –<br>J09<br>J10<br>P15<br>P16<br>J09<br>P02<br>P01<br>P15<br>P15   | 00            |  |
| SIGNAL NAME IM-IRG IM-IRW  | 1.920.  | 090. | 20<br>27<br>5c<br>S I I<br>000 • ST<br>ASY GRP<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>27<br>50   | 48 2 1 1   | PNT -24B 13 -12 12 48 18 18 8 8          | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  FROM GRP2O. ELM15  L 1 S T  | J09<br>P07<br>P01<br>   | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  |
| SIGNAL NAME IM-IRG IM-IRW IM-ISL4  | 1.920.  | 090. | 20<br>27<br>5C<br>S II<br>000 • ST<br>ASY GRP<br>2C<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>20<br>20<br>27<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50  | 48 2 1 1 1 5 48 1 1 1 6 48 2 1   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09<br>P07<br>P01<br>   | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  |
| SIGNAL NAME TM-IRG TM-IRW TM-ISL4  | 1.920.  | 090. | 20<br>27<br>5c<br>5 I<br>00 • ST<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48 2 1   | 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C 1 C  | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09<br>P07<br>P01<br>P05/14<br>P05/14<br>P05/14<br>P15<br>P10<br>P15<br>P10<br>P01<br>P15<br>J09<br>P01<br>P15<br>J09<br>P01<br>P15<br>J09<br>P02<br>P01<br>P15<br>J09<br>P02<br>P01<br>P15<br>P15<br>P15<br>P15<br>P15<br>P15<br>P15<br>P15<br>P15<br>P1 | 00            | FLEMFNT NR.  1.820.753.00  1.820.753.00  1.820.753.00  |
| SIGNAL NAME TH-IRQ TH-IRH TH-ISL4 TH-ISL5  | 1.920.  | 090. | 20<br>27<br>5c<br>S I I<br>000 • ST<br>ASY GRP<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>27<br>50<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20 | 48 2 1   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S T   | J09<br>P07<br>P01<br>   | 00            | FLEMFNT NR.  1.820.753.00  1.820.753.00  1.820.753.00  |
| SIGNAL NAME  IM-IRG  IM-IRW  IM-ISL4  IM-ISL5  IM-KBIR  IM-L1  | 1.920.  | 090. | 20<br>27<br>5c<br>5 I<br>00 • ST<br>20<br>20<br>20<br>20<br>27<br>50<br>20<br>27<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48<br>21<br>   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09<br>P07<br>P01<br>   | 00            | FLEMFNT NR.  1.820.753.00  1.820.753.00  1.820.753.00  |
| SIGNAL NAME IM-IRG IM-IRW IM-ISL4 IM-ISL5 IM-KBIR IM-L1  | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50   | 48 2 1   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S T   | J09<br>P07<br>P01<br>   | 00            | FLEMENT NR.  1.820.753.C0  1.820.753.C0  1.820.753.C0  |
| SIGNAL NAME TH-IRG  TH-IRW  TH-ISL4  TH-ISL5  TH-KBIR  TH-L1  TH-L2  TH-L3                                       | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48<br>21<br>   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09<br>P07<br>P01<br>P05/14<br>P05/14<br>P02/73 - J09<br>J10<br>P15<br>P16<br>J09<br>P01<br>P15<br>J09<br>P01<br>P15<br>J09<br>P01<br>P15<br>J09<br>P01<br>P15<br>P01<br>P02<br>P01<br>P02<br>P01<br>P02<br>P01   | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  |
| SIGNAL NAME IM-IRG IM-IRW IM-ISL4 IM-ISL5 IM-KBIR IM-L1 IM-L2 IM-L3 IM-NM1                                       | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>27<br>50<br>20<br>20<br>27<br>50<br>50<br>51<br>50<br>51<br>50<br>51   | 48<br>21<br>   | 1 C                                      | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S Y 86/C  DESCRIPTION OF ELEMENT  MASTER SERIAL INTERFACE MP-UNIT MASTER  DISPLAY DRIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16 FROM GRP2O. ELM16  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONNECTOR COMMAND UNIT FROM GRP5O.ELM02  CONNECTOR COMMAND UNIT FROM GRP5O.ELM02  | J09 P01 P05/14 P05/14 P05/14 P05/14 P05/14 P15 P16 P07  | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  |
| SIGNAL NAME IP-IRG IM-IRW IM-ISL4 IM-ISL5 IM-KBIR IP-L1 IM-L2 IM-L3 IM-L3 IM-REMIR                               | 1.920.  | 090. | 20<br>27<br>50<br>5 I<br>00 • ST<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48 2 1 48 49 15 48 1 1 16 48 2 1 1 2 1 1 49 16 48 2 48 8 2 1 1 49 16 48 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09 P01   | 00            | FLEMFNY NR.  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00                              |
| SIGNAL NAME TH-IRC  TH-IRW  TH-ISL4  TH-ISL5  TH-KBIR  TH-L1  TH-L2  TH-L3  TH-NMI  TH-RENIR                     | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>27<br>50<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>27<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20                   | 48 2 1 48 49 15 48 1 1 2 1 1 2 1 1 2 1 1 49 1 48 50 1 51 48 1 48 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6   | 1 C                                      | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S T   | J09 P01   | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00                              |
| SIGNAL NAME  | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48 2 1 1 6 4 8 4 9 1 5 1 6 4 8 1 1 1 5 4 8 1 1 2 1 1 2 1 1 4 9 1 6 4 8 5 0 0 1 4 8 4 9 1 6 4 8 5 0 0 1 6 4 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6   | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELM15  L 1 S Y 86/C  DESCRIPTION OF ELEMENT  MASTER SERIAL INTERFACE MP-UNIT MASTER  DISPLAY DRIVER PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP2O. ELM16 FROM GRP2O. ELM16  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM16  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM16  DISPLAY DRIVER MASTER SERIAL INTERFACE FROM GRP2O. ELM16  CONSECTOR COMMAND UNIT FROM GRP5O. ELM2  CONNECTOR COMMAND UNIT FROM GRP5O. ELM02  CONNECTOR COMMAND UNIT FROM GRP5O. ELM02  CONNECTOR COMMAND UNIT FROM GRP5O. ELM02  MP-UNIT MASTER  PARALLEL REMOTE CONTROL MASTER SERIAL INTERFACE FROM GRP5O. ELM02  MP-UNIT MASTER  MASTER SERIAL INTERFACE | J09 P01   | 00            | T.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00 |
| SIGNAL NAME TH-IRC  TH-IRC  TH-IRW  TH-ISL4  TH-ISL5  TH-KBIR  TH-L1  TH-L2  TH-L3  TH-RESIT  TH-RESET  TH-RESHP | 1.920.  | 090. | 20<br>27<br>50<br>5 I I<br>000 • ST<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20  | 48 2 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 6 8 8 2 1 1 1 1 6 8 8 2 1 1 1 1 6 8 8 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1C 1 | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09 P01  J09 J10  P15 P16 J09 P01  P15 J09 P01  P15 J09 P02 P01  P03  P03  P03  P03  P03  P03  P03  | 00            | T.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00 |
| SIGNAL NAME TH-IRC  TH-IRC  TH-IRW  TH-ISL4  TH-ISL5  TH-KBIR  TH-L1  IH-L2  TH-L3  TH-NM1  IP-REMIR  TH-RES     | 1.920.  | 090. | 20<br>27<br>5c<br>S II<br>000 • ST<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20   | 48 2 1 48 49 15 16 48 1 1 2 1 1 2 1 1 49 16 48 2 48 501 48 49 48 49  | 1 C C C C C C C C C C C C C C C C C C C  | 20  | • T  | APE DECK & AUDIO                        | MASTER SERIAL INTERFACE FROM GRP2O. ELMIS  L 1 S T   | J09 P01   | 00            | FLEMENT NR.  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  1.820.753.00  |

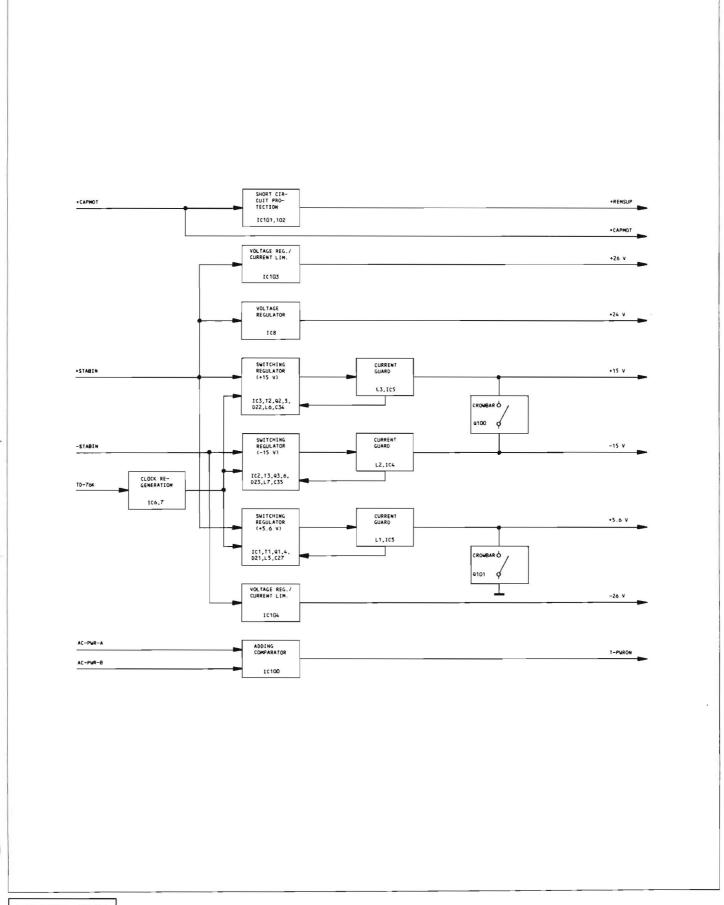
| SIGNAL NAME  | COLOR   | IN  | ASY GRP   | ELM  | PNT   | S     | LV | TYPE          | DESCRIPTION OF ELEMENT   |  | REMARK          | FLEMENT AR.   |
|--|---------|-----|---|--|---|-------|----|---------------|--|--|-----------------|---|
| T⊫RL2  |         |     | 48<br>50<br>50<br>51  | 3  | 18<br>14<br>18<br>14  |       |    |               | FROM GRP50. ELMO3<br>CONNECTOR COMMANO UNIT<br>CONNECTOR PUSHBUTTON ASSEMBLY<br>FROM GRP50. ELMO2  | P03  |                 |   |
| TM-RL3   | -       |     | 48<br>50<br>50  | 1<br>2<br>3<br>1   | 17<br>15<br>17<br>15  | -     |    |               | FROM GRP50, ELMO3<br>CONNECTOR COMMAND UNIT<br>CONNECTOR PUSHBUTTON ASSEMBLY<br>FROM GRP50.ELMO2   | P03  |                 |   |
| TM-RL4   |         |     | 48<br>50<br>50<br>51  | 1<br>2<br>3  | 16<br>16<br>16<br>16  | -     |    |               | FROM GRP50. ELMO3<br>CONNECTOR COMMANO UNIT<br>CONNECTOR PUSHBUTTON ASSEMBLY<br>FROM GRP50.ELMO2   | P03  |                 | ***************************************   |
| TM-RL5   |         |     | 48<br>50<br>50<br>51  | 1<br>2<br>3<br>1   | 15<br>17<br>15<br>17  | •     |    |               | FROM GRP50. ELMO3 CONNECTOR COMMAND UNIT CONNECTOR PUSHBUTTON ASSEMBLY FROM GRP50. ELMO2   | P03  |                 |   |
| TF-RL 6  |         | _   | 48<br>50<br>50<br>51  | 1<br>2<br>3<br>1   | 14<br>10<br>14<br>10  | •     |    |               | FROM GRP50. ELMO3<br>CONNECTOR COMMAND UNIT<br>CONNECTOR PUSHBUTTON ASSEMBLY<br>FROM GRP50.ELMO2   | P03  | 2               |   |
| T # RL 7   |         | _   | 48<br>50<br>50  | 1<br>2<br>3<br>1   | 13<br>11<br>13<br>11  |       |    |               | FROM GRP50. ELMO3<br>CONNECTER COMMAND UNIT<br>CONNECTER PUSHBUTTON ASSEMBLY<br>FROM GRP50. ELMO2  | P03  |                 |   |
| TP-RW  |         |     | 20  | 48   | 268   | -     |    |               | MASTER SERIAL INTERFACE  | 109  |                 | 1.820.753.00  |
|  |         |     | 20  | 50   | 27  |       |    |               | MP-UNIT MASTER SMPTE/EBU INTERFACE   | J10  |                 | 1.820.784.00  |
| <br>TM-RX  |         |     | 20  | 51   | 20A   | -     | -  |               | MASTER PERIPHERY CONTROLLER MP-UNIT MASTER   | J12  |                 | 1.820.784.00  |
|  |         |     | 20  | 50   | 10  | _     |    |               | SMPTE/EBU INTERFACE  | J11  |                 | 1.820.751.00  |
| TP-SE IR   |         |     | 20  | 48<br>50   | 208   |       |    |               | MASTER SERIAL INTERFACE<br>SMPTE/EBU INTERFACE   | J09<br>J11   |                 | 1.870.753.00  |
| TF-SHIR  |         |     | 20<br>20<br>50  | 15<br>48<br>1  | 21<br>14A<br>21   |       |    |               | DISPLAY DRIVER<br>MASTER SERIAL INTERFACE<br>FROM GRP20. ELM15   | P15<br>J09<br>P01  |                 | 1.870.753.00  |
| TM-SL2   |         |     | 20  | 48   | 228   |       |    |               | MASTER SERIAL INTERFACE MP-UNIT MASTER   | J09  |                 | 1.820.753.00  |
| TP-SL3   |         |     | 20<br>20  | 49   | 3 16  | -     | -  |               | MP-UNIT MASTER<br>SMPTE/EBU INTERFACE  | J10  |                 | 1.820.784.00  |
|  |         |     | ~ ~   |  |   | -     |    |               |  | J09  |                 |   |
| TH-SL4   |         | -   | 20  | 48   | AP  |       |    |               | MASTER SERIAL INTERFACE  |  |                 |   |
| *********  | TUDER A | 5   | S   | G  | 23<br>N   | A I   |    | h I R E       | L I S T • 86/0   | J10<br>J11<br>   |                 | 1.87C.753.C0<br>1.820.784.00<br>1.820.751.00<br>0.000.000.000.000   |
| ••••••••••••••••   | 1.820   | 090 | 20 20   | 49<br>50<br>I G  | 23<br>23<br>N   | E 2 G | •  | APE DECK & A  | HP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T  | J10<br>J11<br>   | * 11:48         | 1.820.784.00  |
| *********  | 1.820   | 090 | 20<br>20<br>  | 49<br>50<br>I G  | 23<br>23<br><br>N<br><br>A<br><br>PNT   | E 2 G | •  | APE DECK & A  | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T 86/01  LUIO 83/0   | J10<br>J11<br>   | - 11:48<br>- 00 | 1.820.784.00 1.820.751.00  PAGFICE FLEMENT NR.  1.820.753.01 1.820.753.61   |
| OFFICE STATE OF THE STATE OF TH | 1.820   | 090 | 20<br>20<br>5<br><br>S<br>ASY GRI<br>20<br>20   | 49<br>50<br>UDER   | 23<br>23<br>23<br>24<br>24<br>24  | E 2 G | •  | APE DECK & A  | HP-UNIT MASTER SMPTE/EBU INTERFACE  L I S I • 86/0  DESCRIPTION OF ELEMENT  MASTER SERIAL INTERFACE  MP-UNIT MASTER  | J10<br>J11<br>5/14<br>************************************                           | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.753.00  1.820.751.00  |
| *************  ************  *********   | 1.820   | 090 | 20<br>20<br>20<br>5<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8 | 49<br>50<br>1 G<br>1 G<br>1 G<br>1 UDEF<br>2 ELI<br>48<br>49<br>50<br>50<br>51 | 23<br>23<br>23<br>24<br>24<br>24<br>25<br>25<br>14A   | E 2 G | •  | APE DECK & A  | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T  | J10<br>J11<br>5/14<br>60000<br>2/73<br>J10<br>J11<br>J10<br>J11<br>J10<br>J11<br>J10 | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.751.00  1.820.751.00  1.820.784.00  1.820.784.00  1.820.784.00  1.820.784.00  |
| *************  ************  *********   | 1.820   | 090 | 20<br>20<br>20<br>30<br>30<br>45Y GRI<br>20<br>20<br>20<br>20<br>20<br>20                                     | 49<br>50<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G | 23<br>23<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N | E 2 G | •  | APE DECK & A  | PP-UNIT MASTER SMPTE/EBU INTERFACE  L I S 1  | J10<br>J11<br>5/14<br>************************************                           | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.751.00  1.820.751.00  1.820.753.00  1.820.754.00  1.820.7784.00 |
| *************  ************  *********   | 1.820   | 090 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 49<br>50<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G<br>1 G | 23<br>23<br>23<br>24<br>24<br>25<br>25<br>14A<br>15   | E 2 G | •  | APE DECK & A  | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T • 86/0  DESCRIPTION OF ELEMENT  MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MSTER SERIAL INTERFACE MP-UNIT MASTER MP-UNIT MASTER  MP-UNIT MASTER  MP-UNIT MASTER  | J10<br>J11<br>5/14<br>5/14<br>5/14<br>5/14<br>5/14<br>5/14<br>5/14<br>5/             | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.751.00  1.820.751.00  1.820.753.00  1.820.754.00  1.820.7784.00 |
| SIGNAL NAME TH-SL5  TH-SL6  TH-SL7 TM-TX   | 1.820   | 090 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 49<br>50<br>1 G<br>7 ELP<br>48<br>49<br>50<br>49<br>50<br>51<br>49<br>50       | 23<br>23<br>23<br>23<br>23<br>24<br>24<br>24<br>25<br>25<br>14A<br>15<br>11                   | E 2 G | •  | TYPE          | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S I • 86/0  DESCRIPTION OF ELEMENT  MASTER SERIAL INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER  MP-UNIT MASTER SMPTE/EBU INTERFACE MASTER PERIPHERY CONTROLLER  MP-UNIT MASTER SMPTE/EBU INTERFACE CONN. AUTOLOCATOR. REPOTE TIPER  | J10<br>J11<br>5/14<br>   | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.751.00  1.820.751.00  1.820.753.00  1.820.754.00  1.820.7784.00 |
| TH-SL6  TH-SL7  TH-TX  | 1.820   | 090 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 49<br>50<br>1 G<br>2 ELP<br>48<br>49<br>50<br>51<br>49<br>50<br>1 2            | 23<br>23<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N | E 2 G | •  | TYPE          | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T  | J10 J11 J12 J10 J11 J11 J11 J12 J10 J11 J10 J11 J11 J11 J11 J11 J11 J11              | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.751.00  1.920.753.00  1.920.751.00  1.920.751.00                |
| SIGNAL NAME TM-SL5  TH-SL6  TM-TX TR-A   | 1.820   | 090 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 49<br>50<br>1 G<br>2 ELD<br>49<br>50<br>50<br>1 2<br>1 2<br>31<br>50<br>49     | 23<br>23<br>23<br>23<br>23<br>24<br>24<br>25<br>25<br>14A<br>15<br>11<br>11<br>11<br>3<br>5   | E 2 G | •  | TYPE  B  B    | MP-UNIT MASTER  MP-UNIT MASTER | J10<br>J11<br>J11<br>J11<br>J11<br>J11<br>J11<br>J11<br>J11<br>J11                   | - 11:48<br>- 00 | FLEMENT NR.  1.820.751.00  FLEMENT NR.  1.820.753.00  1.820.751.00  1.820.751.00  1.820.751.00  1.820.751.00  1.820.751.00  |
| TH-SL7 TH-TX TR-B TRANSA   | 1.820   | 090 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2  | 49 50 I G G G G G G G G G G G G G G G G G G                                    | 23<br>23<br>23<br>23<br>24<br>24<br>24<br>25<br>25<br>25<br>11<br>11<br>11<br>3<br>5          | E 2 G | •  | TYPE  B  B  B | MP-UNIT MASTER SMPTE/EBU INTERFACE  L I S T  | J10 J11 J11 J10 J11 J11 J11 J11 J11 J11  | - 11:48<br>- 00 | 1.820.751.00  1.820.751.00  P A G F 108  FLEMENT NR.  1.820.753.0  1.820.751.00  1.820.751.00  1.820.751.00  1.820.751.00   |

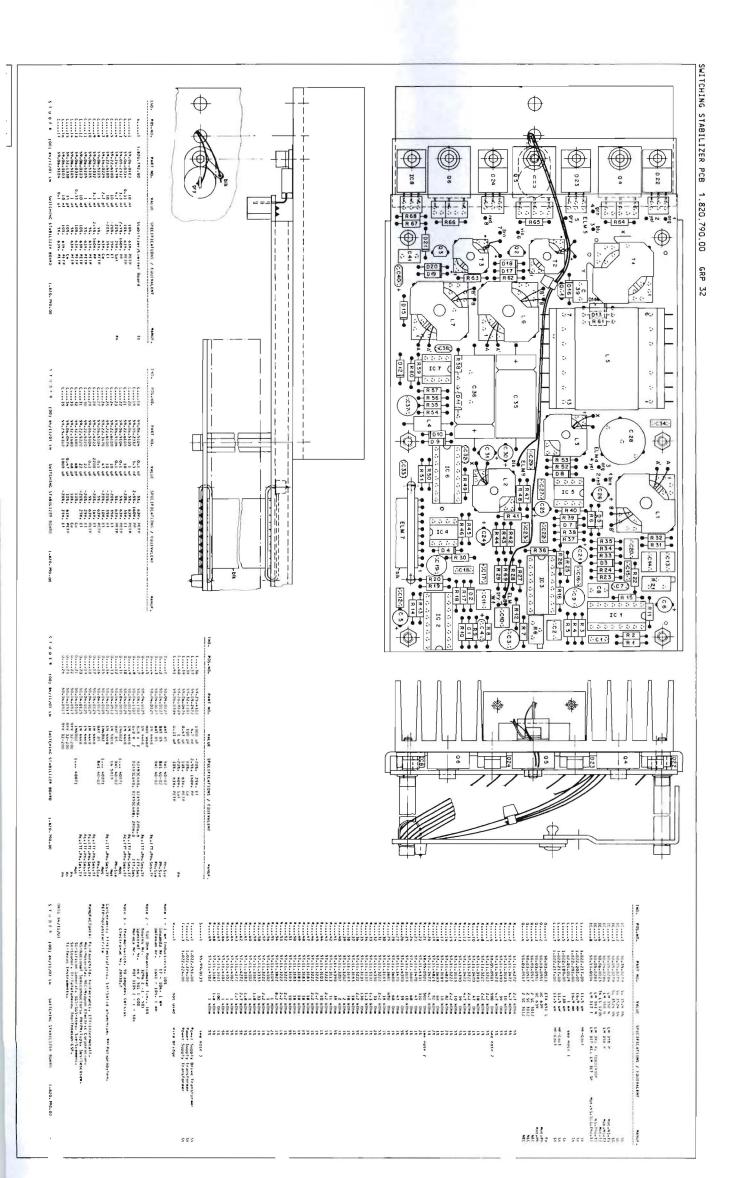
|             |       |    |       |      |     |     |   |   | APE DECK & A |  | 83/02/23   |        |             |
|-------------|-------|----|-------|------|-----|-----|---|---|--------------|--|------------|--------|-------------|
| SIGNAL NAME | COLOR | MI | ASY ( | GRP  | ELM | PNT | 5 | ٧ | TYPE         | GESCRIPTION OF ELEMENT                       |            | REMARK | FLEMENT NA. |
| - CONT.OF   |       | _  |       | 27   | 2   | 22  | _ | - |              | FROM GRP20. ELM16                            | P02        |        |             |
| O VCU       |       |    |       | 27   | 2   |     |   |   |              | FROM GRP20. ELMI6                            | P02        |        |             |
|             |       |    |       |      | 2   |     |   |   |              | FROM GRP20. ELMI6                            | P02        |        |             |
|             |       |    |       | 27   | 2   |     |   |   |              | FROM GRP20. EL MIG                           | P07        |        |             |
|             |       |    |       | 27   | 2   |     |   |   |              | FROM GRP20. ELM16                            | POZ        |        |             |
|             |       |    |       | 27   | ž   |     |   |   |              | FROM GRP20. ELMI6                            | P02        |        |             |
|             |       |    |       | 27   | 2   |     |   |   |              | FROP GRP20. ELM16                            | P02        |        |             |
|             |       |    |       | 27   | 2   |     |   |   |              | FROM GRP20. ELM16                            | P02        |        |             |
|             |       |    | - 7   | 27   | 2   | 40  |   |   |              | FROM GRP20. ELM16                            | P02        |        |             |
|             |       |    |       | 50   | 1   |     |   |   |              | FROM GRP20. ELM15                            | POI        |        |             |
|             |       |    |       | 50   | 1   | 24  |   |   |              | FROM GRP20, ELM15                            | PO1        |        |             |
|             |       |    |       | 50   | 1   | 26  |   |   |              | FROM GRP20. ELM15                            | POI        |        |             |
|             |       |    |       | 50   | 1   | 28  |   |   |              | FROM GRP20. ELMIS                            | POI        |        |             |
|             |       |    |       | 50   | 1   | 30  |   |   |              | FROM GRP20. ELM15                            | POI        |        |             |
|             |       |    |       | 50   | 1   | 32  |   |   |              | FROM GRPZO. FLM15                            | P 0 1      |        |             |
|             |       |    |       | 50   | 1   | 34  |   |   |              | FROM GRP20. ELM15                            | PO1        |        |             |
|             |       |    |       | 50   | 1   | 36  |   |   |              | FROM GRP20. ELMIS                            | P01        |        |             |
|             |       |    |       | 50   | 1   | 38  |   |   |              | FROM GRP20. ELM15                            | POI        |        |             |
|             |       |    |       | 5 C  | 1   | 40  |   |   |              | FROP GRP20. ELM15                            | P01        |        |             |
| CAPMOT      | 4     |    |       | 11   | 3   | 4   |   |   | L            | RECTIFIFR                                    | 0203       |        | 70.01.023   |
|             | 4     |    |       | 15   | 4   | 2   |   |   | ι            | CAPACITER                                    | C04        |        | 59.26.710   |
|             | 4     |    |       | 12   | 5   |     |   |   | M            | CONNECTOR TO GRP32. ELMOI                    | PO 1       |        |             |
|             | 4     |    |       |      |     | 23  |   |   | F            | FROM GRP32. ELMO2                            | 101        |        |             |
|             | 4     |    |       |      | 2   |     |   |   | M            | TO GRP21. ELMO2                              | POI        |        |             |
|             | 4     |    |       | 2C ( |     |     |   |   |              | WIRE FIFLD                                   |            |        |             |
|             | *     |    |       |      | 62  | 9   |   |   |              | WIRE FIFLD                                   |            |        |             |
|             | 4     |    |       |      | 70  |     |   |   |              | FROM GRP21. ELMO1                            | J13        |        |             |
|             | 4     |    |       |      |     | 1   |   |   | t .          | TO CAPSTAN MOTOR DRIVE AMP.                  |            |        |             |
|             |       |    |       |      | 1   |     |   |   | 9            | TO GRP2C. ELM70                              | POI        |        |             |
|             |       |    |       | 21   | 2   |     |   |   | 5            | FROM GRP19. ELMOZ<br>INPUT FROM GRPLZ. ELMOS | 701        |        |             |
|             |       |    |       | 32   |     | 9   |   |   | -            | OUTPUT                                       | J01<br>P01 |        |             |
|             |       |    |       | 39   | 3   | 23  |   |   | 5            | FROM GRP20. ELM71                            | P01        |        |             |





BLOCK DIAGRAM SWITCHING STABILIZER PCB 1.820.790 STABILIZER/LIMITER PCB 1.820.792





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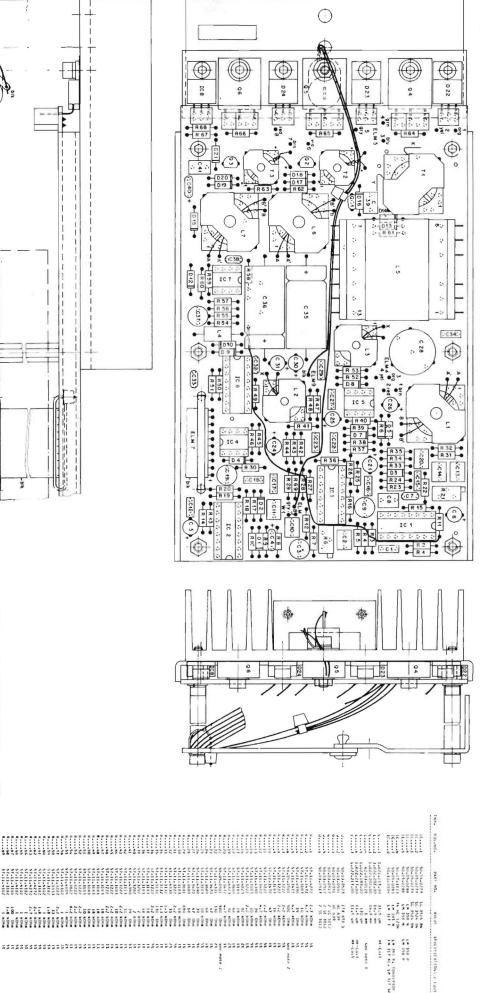
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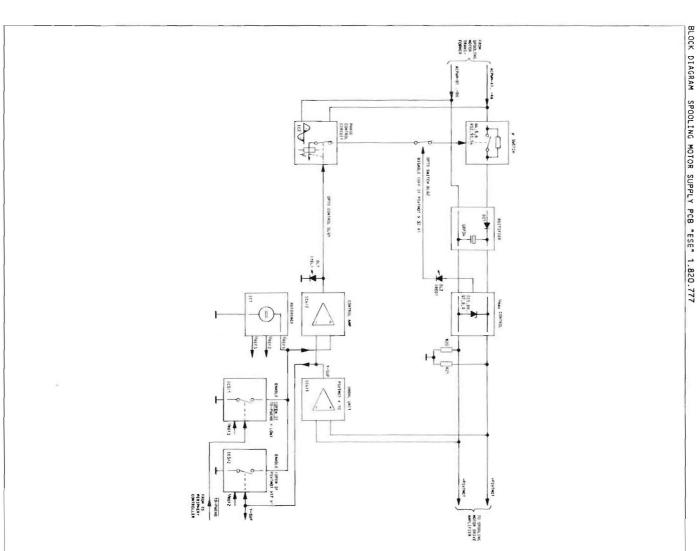
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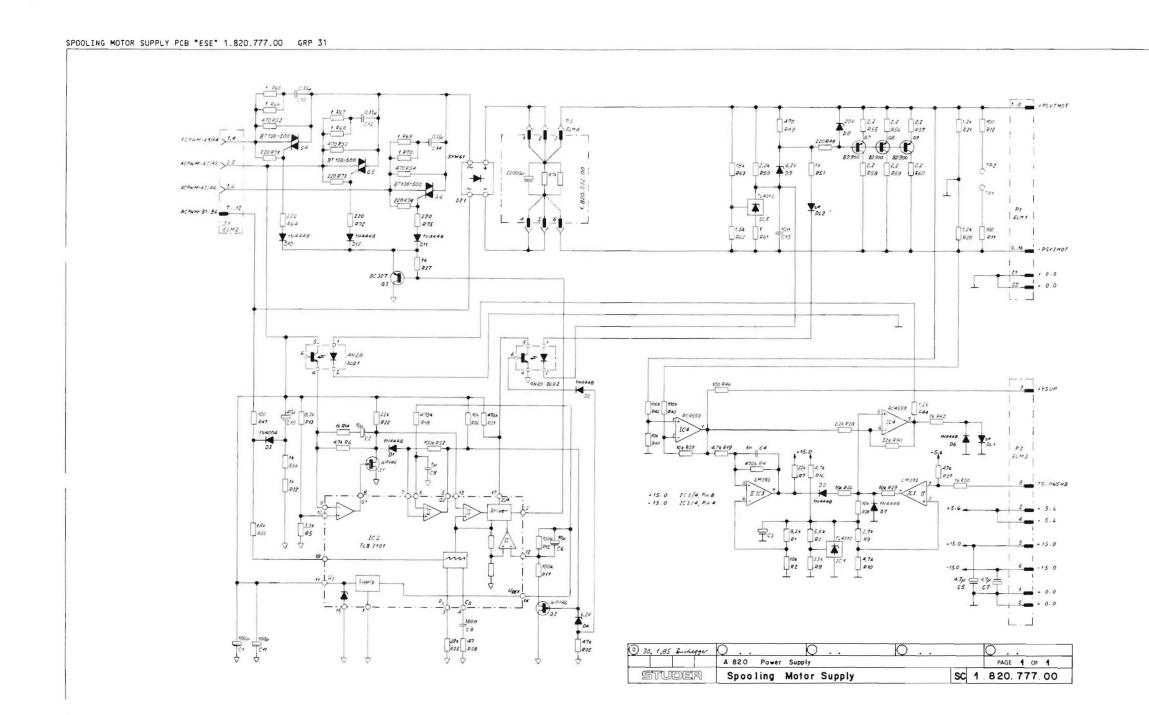


SWITCHING STABILIZER PCB 1.820.790.81 GRP32

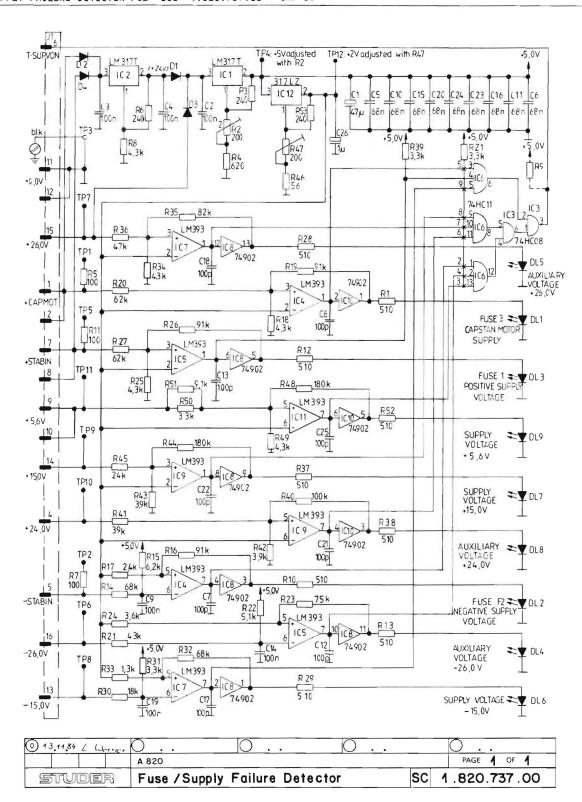


A820

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FUSE/SUPPLY FAILURE DETECTOR PCB "ESE" 1.820.737.00 GRP 59



PUBLISHED: 08/86 SPOOLING MOTOR SUPPLY PCB "ESE" 1.820.777.00  $\bigcirc$  $\Diamond$ (1) 0 (1) Φ (1) 0 0 9 08 97 96 05 -0 8.8.8 8 8 8 0 3 8 6 C# 4-78. 8. **(4)** R 57 R 56 R 59 R 58 R 60 (F) GRP 014 1 ч 227 2 A820 R 52 - R 60 20000 C 12 (1) **(** # 12-25 # 12-2 10.31014 10.33014 10.331014 10.331014 #60 4234 176 3101 0 s | R 37 | R 36 | D 4 | R 33 | R 37 | R 22 | R 22 | R 27 (; ° 0.09.0 0.08.0 ) Deres 2 · 10 2 77.000 77.000 77.000 77.000 77.000 77.000 77.000 77.000 77.000 0100 R 10 8 0 ( ); ( ) + ) 1 1010.012-50 0 \$===\$\$p=========== 0.5 Щ 50.20.0305 0 parest to biscer I. Take the 2x contacts casard 57 1 and theyang \*\*\*\*\*\*\*\*\* 3-02-048 07-02-110 07-02-110 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 07-02-101 \*\*\*\*\*\*\*

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BASIS PCB TAPE DECK 1.820.701.00 GRP 20

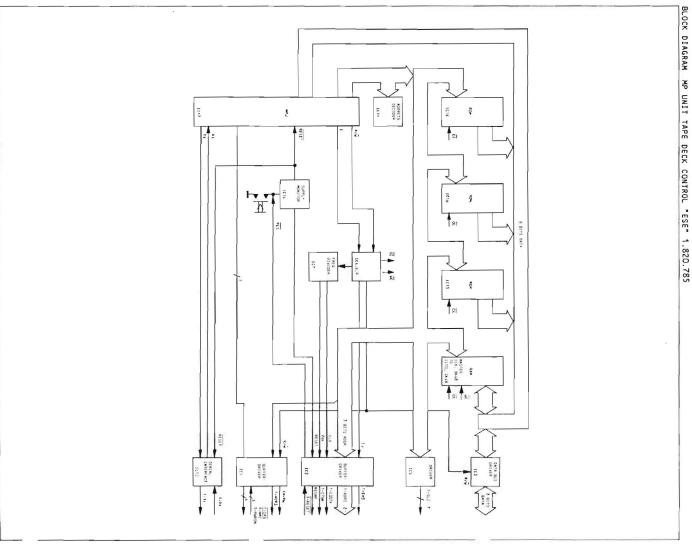
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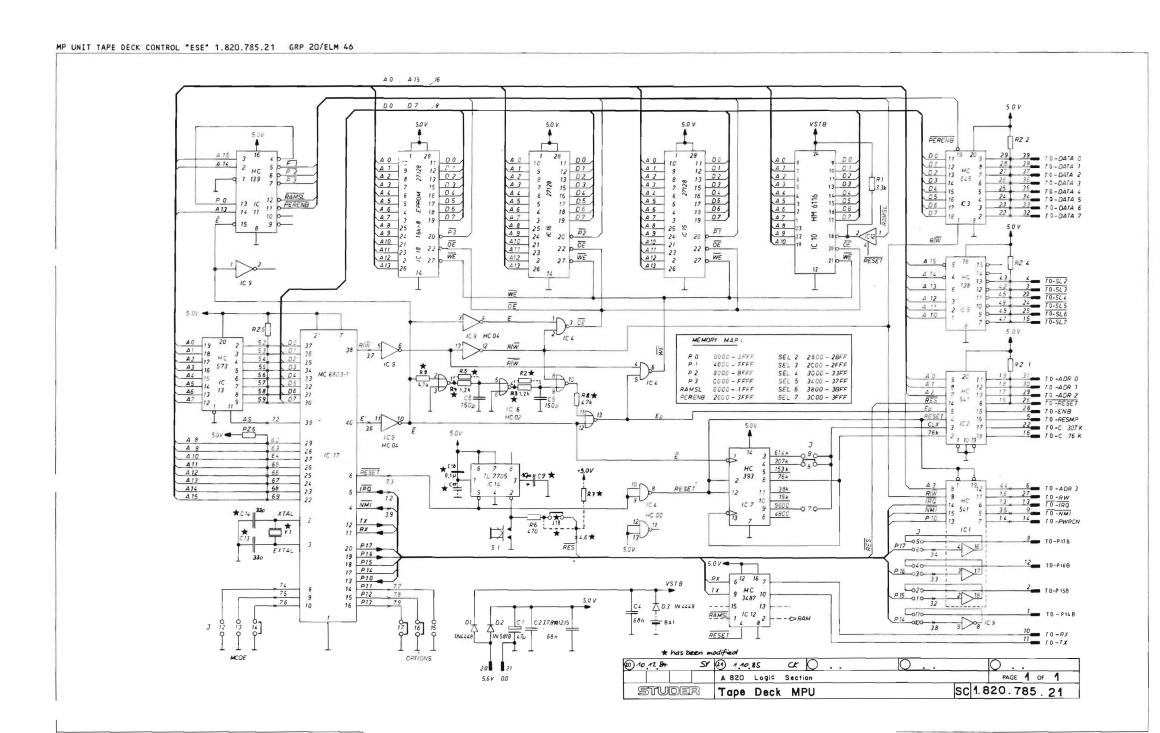
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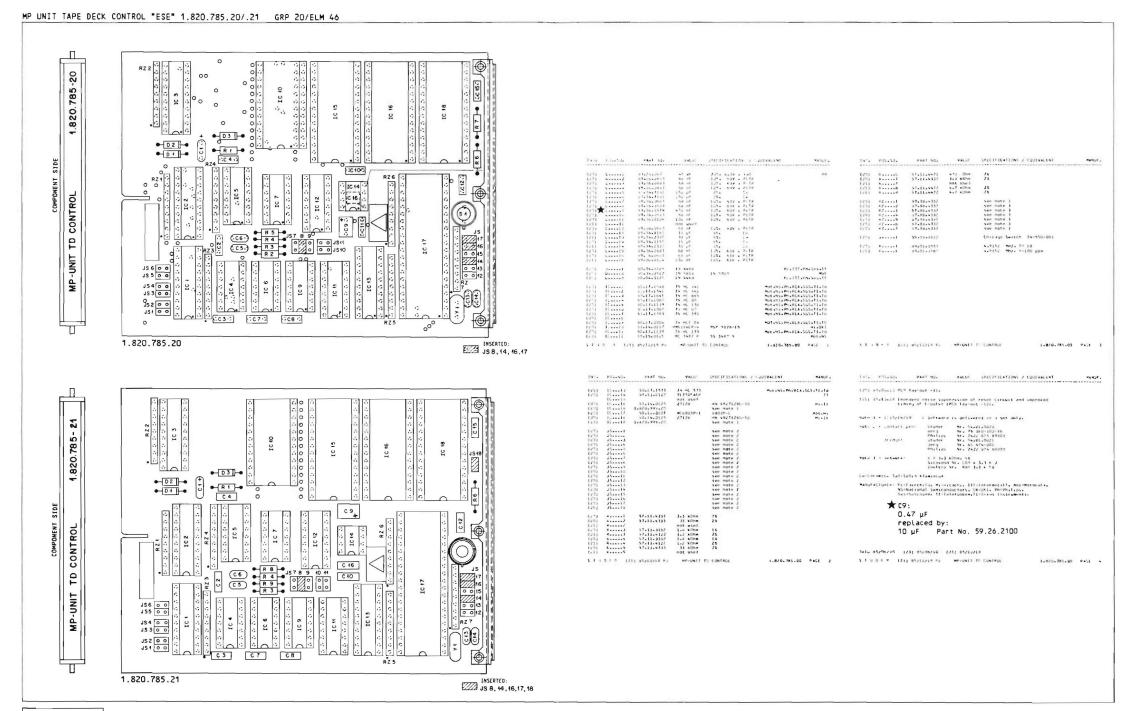
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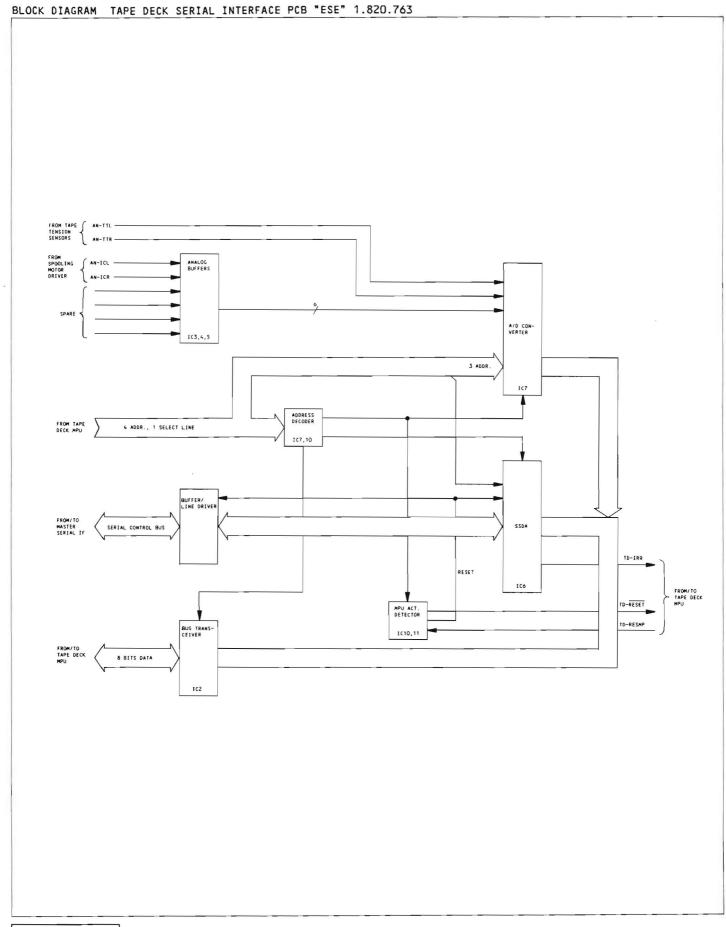
BASIS PCB TAPE DECK 1.820.701.00 GRP 20

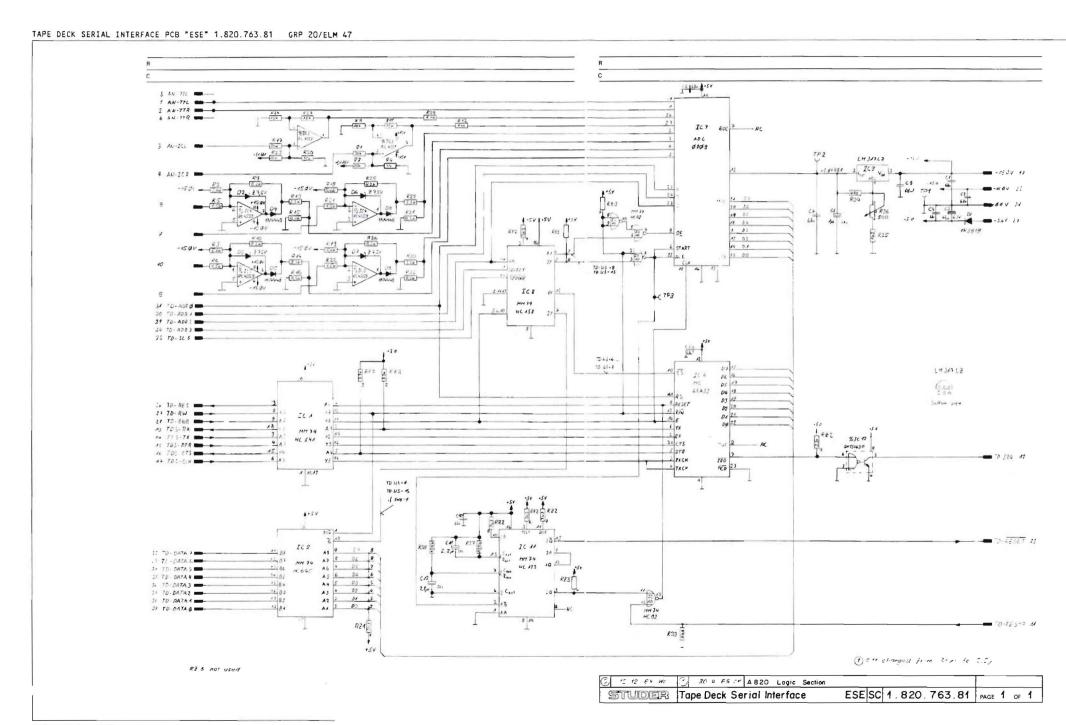
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COMPONENT SIDE TAPE DECK SERIAL INTERFACE 4.820.763-81

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|-------|-------------|------------|-----------|-------------|----------------|-------------------|---------|
| 0     |             | 0 0        |           |             |                | 0                 |         |
| 0     |             | 00         | ₹3 -      | 0.020       | \$1.5°         |                   | Ţ.      |
| R 1   | R 2         | -          | 7 6<br>D3 | -           | 2              | rcı               |         |
| R 8   | R 9         |            | 05 -      | T           | 300            | 0000000           | <u></u> |
| R 12  | R 13        |            | 16        | +(7.C 3 7.) | 5              |                   | Ç.      |
| 0.53  |             |            | 555       | 5.C45       | 0.3            | 1C 5              | ₹4      |
| ) IC  |             |            | 1C 5      |             |                | RZ (              | ]       |
| R 17  | # R 18      |            | 19 -      |             | 0 .            | 500000000         | ত       |
| R23   | 06<br>R2    | -          | D 7       |             |                | 10                |         |
| R27   | R29         |            | D 9       |             | P              | o.                |         |
|       | - N3.       | _ • • [    |           |             | 5.55           | 5 5 5 5 5 5 5 5 5 | Ç       |
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| b     | 7           |            | 0         |             | 0              | 0000000           | 3       |
|       | 500000      |            |           | C-C-6.2-    |                | ) 1c 8            | 50      |
|       | 275         | , ., ., ., | (1.71     |             | r              | RZ 2              |         |
| + (:: | C8.7)       | • R3       |           | 00000       | 0000           | 0000000           |         |
| ● F   | 34          | 0 0 0      |           | IC 10       | [8]            | ) IC II           |         |
|       | 1P2         | ) IC 11    |           | 35000       | (§)<br>►R 37 - | + +               | (5)     |
| 画     | _ v [;6     | 300        | ∴ §==>    |             | R 38           | (C113) (-C125)    | A       |
| Ψ-    | are more    |            |           | $\Psi$      |                |                   | - 4     |

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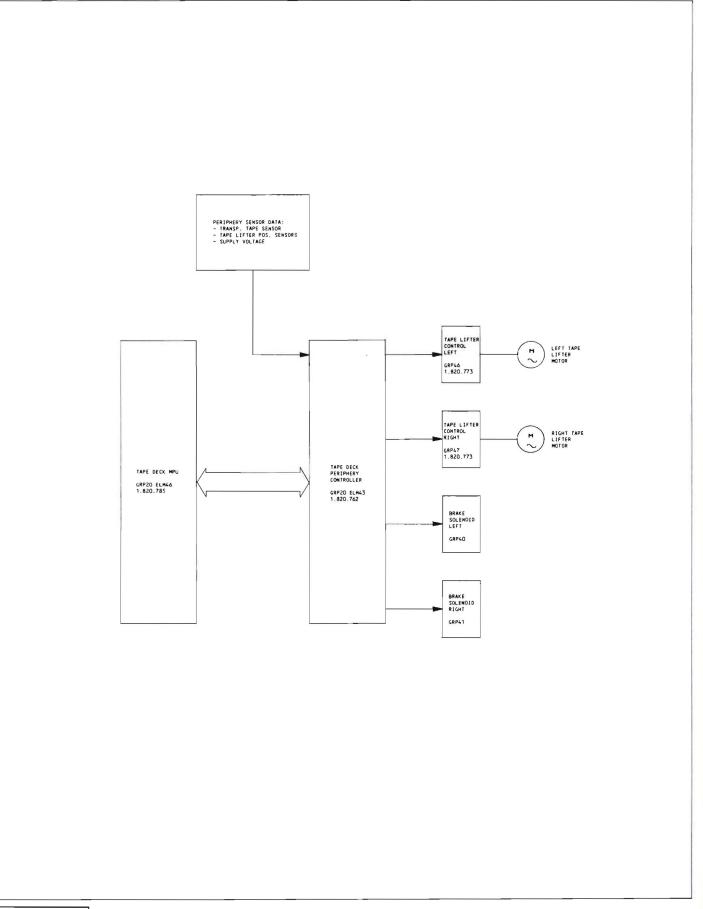
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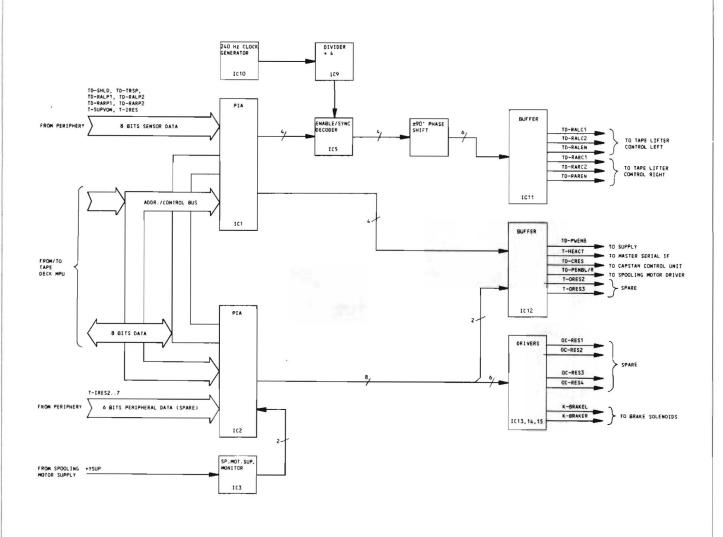
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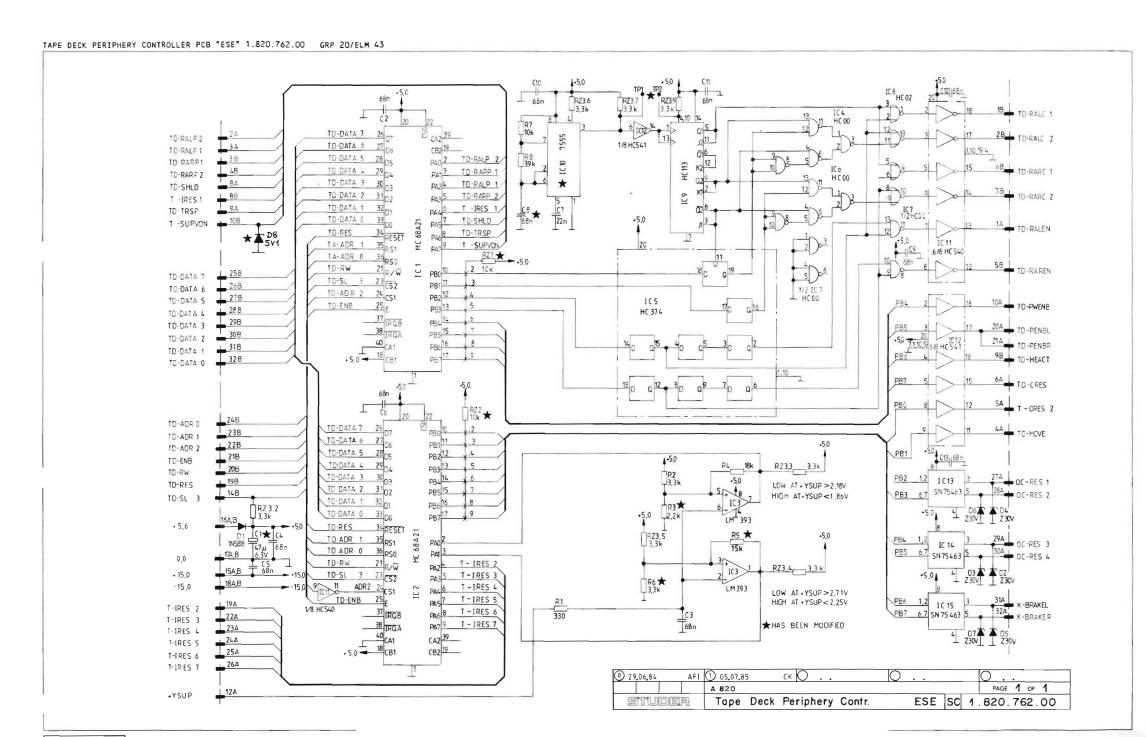
TAPE DECK SERIAL INTERFACE PCB "ESE" 1.820.763.81 GRP 20/ELM 47





BLOCK DIAGRAM TAPE DECK PERIPHERY CONTROLLER PCB "ESE" 1.820.762







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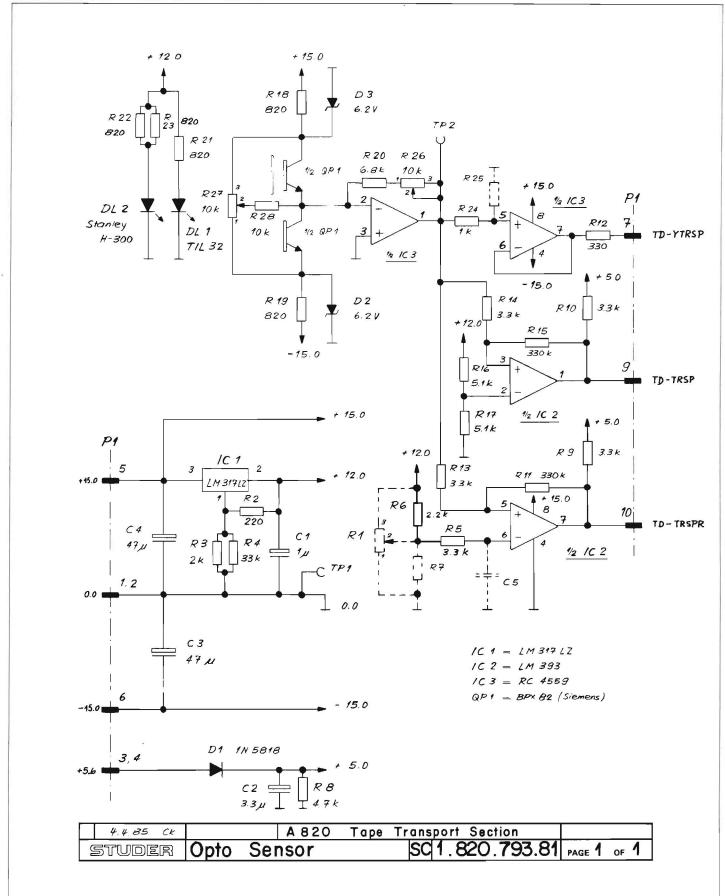
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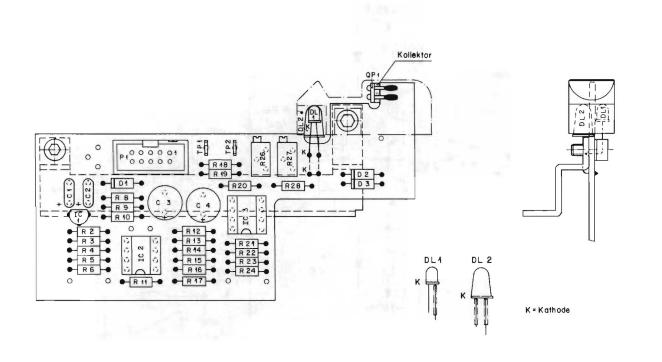
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A820

OPTO SENSOR PCB 1.820.793.81 GRP 44

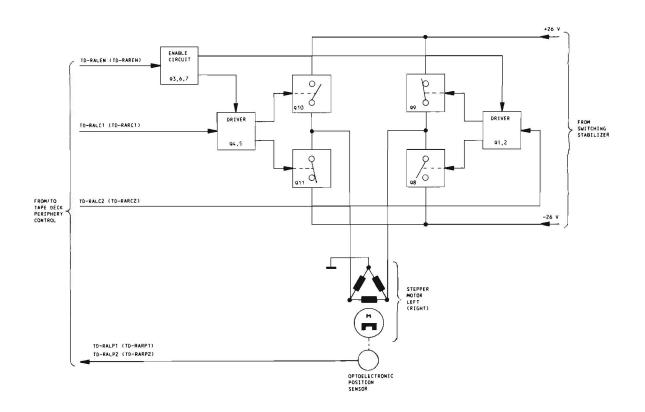


OPTO SENSOR PCB 1.820.793.81 GRP 44

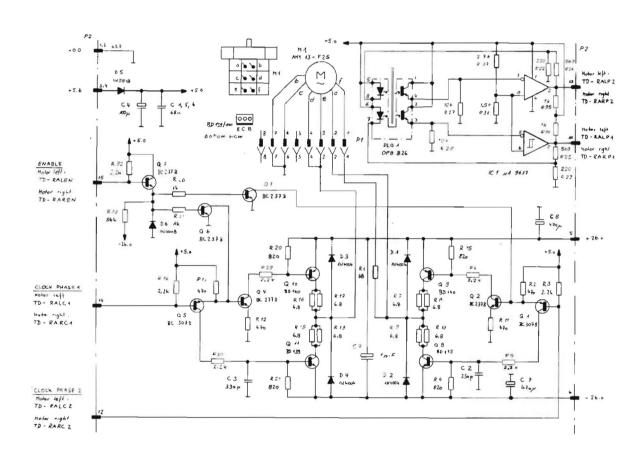


| NO. | P05.NO.      | PART NO.                                | VALUE     | SPECIFICATIONS / EQUIVALENT                  | MANUF.          | IND.  | POS.NO.       | PART NO.         | VALUE           | SPECIFICATIONS / EQUIVALENT  | MANUF   |
|-----|--------------|---|-----------|--|-----------------|-------|---------------|------------------|-----------------|--|---------|
|     | C 1          | 59-26-9109                              | 1.0 uF    | 20%, 40V , Sal                               | Ph              |       | R17           | 57-11-3512       | 5-1 kOhm        | 13   |         |
|     | C 2          | 59-26-2339                              | 3.3 uF    | 20%, 16V . Sal                               | Ph              |       | R 18          | 57-11-4821       | 820 Ohm         | 21   |         |
|     | C 3          | 59.22.5470                              | 47 UF     | 20%, 25V . E1                                | F-10            |       | R 19          | 57-11-4821       | 820 Ohm         | 21   |         |
|     | C 4          | 59.22.5470                              | 47 uF     | 20%, 25V . E1                                |                 |       | R 20          | 57-11-4662       | 6.8 kOhe        | 21   |         |
|     | £ 5          | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |           | not used                                     |                 |       | R21           | 57-11-4821       | 820 Ohm         | 21   |         |
|     | ****         |   |           |  |                 |       | R 22          | 57.11.4821       | 820 Ohm         | 2%   |         |
|     | 01           | 50-04-0512                              | IN 5818   | IN 5819                                      | Mot             |       | R 23          | 57-11-4821       | 820 Ohm         | 21   |         |
|     | 0 2          | 50.04.1118                              | 6 . 2 V   | 5%, .40W.Z                                   | III.Ses         |       | R 24          | 57-11-4102       | 1.0 kOhm        | 21   |         |
|     | 0 3          | 50.04.1118                              | 6.2 V     | 5440N+2                                      | 1TT.Ses         |       | R 25          |                  | THE HOLLS       |  |         |
|     |              |   |           | C. E. C. |                 |       | R 26          | 58-05-0103       | 10 kOhm         | see note 2   |         |
|     | OL 1         | 50.04.2110                              | TIL 32    | 09 160                                       | 30.11           |       | R 27          | 58.05.0103       | 10 kOhm         | see note 2   |         |
|     | DL • • • • 2 | 50.04.2155                              | H-30D     | LED-red                                      | Sty             |       | R 28          | 57.11.4103       | 10 kOh=         | 21   |         |
|     | 101          | 50-10-0108                              | LM 317 LZ |  | Mot, Nat        |       | YP1           | 54.02-0320       |                 | test pin   |         |
|     | 10 2         | 50-05-0283                              | LM 393 N  | LM 393 P                                     | NS-TI           |       | 10 2          | 54.02.0320       |                 | test pin   |         |
|     | 103          | 50-09-0107                              | RC 4559NB | UPC 4559                                     | Ra+NtC          |       |               |                  |                 | The state of the s |         |
|     | P 1          | 54-14-2001                              |           | see note 1                                   |                 |       |               |                  |                 |  |         |
|     | OP 1         | 50-04-2154                              | BPX 82    |  | Sie             |       |               |                  |                 |  |         |
|     | R 1          |   |           | not used                                     |                 |       |               |                  |                 |  |         |
|     | R Z          | 57-11-3221                              | 220 Ohm   | 13   |                 | Note  | 1 - Connecto  | or: Yamairt      | Nr. FAP-10      | 2204-80-0  |         |
|     | R 3          | 57-11-3202                              | 2 kOhm    | 13   |                 |       | a Goldinge Co | Burndy           |                 | 8 16 800 GS  |         |
|     | A 4          | 57-11-4333                              | 33 kOhm   | 23   |                 |       |               | but no y         |                 | B 10 300 03  |         |
|     | R 5          | 57-11-4332                              | 3.3 kOhm  | 2%   |                 | Note  | 2 - Potentie  | ometer: Bourns   | Nr. 1296 7      | - 1 - 103  |         |
|     | R            | 57.11.4222                              | Z.Z kOhm  | 21   |                 |       | ocenici.      |                  | 1 Mr. 64 Z 1    |  |         |
|     | R 7          |   |           | not used                                     |                 |       |               | spectre          |                 | .05 . 000  |         |
|     | R 8          | 57-11-4472                              | 4.7 kOhm  | 23   |                 | Flafi | ectrolytic.   | Sal=Solid Alus   | u o i um        |  |         |
|     | R 9          | 57-11-4332                              | 3.3 kOhm  | 23   |                 |       |               | 301.301.10 11.01 |                 |  |         |
|     | R 10         | 57-11-4332                              | 3-3 kOhm  | 23   |                 | Manuf | acturer: III  | Taintermetall.   | Mot shot or ola | , Nat=National,  |         |
|     | R 11         | 57-11-4334                              | 330 kOhm  | 23   |                 |       |               |                  |                 | EC=Nippon Electric Corp.,  |         |
|     | 8 12         | 57.11.4331                              | 330 Ohm   | 21   |                 |       |               |                  |                 | theon. Ses-Sescosem.   |         |
|     | R 13         | 57-11-4332                              | 3.3 kOhm  | 21   |                 |       |               |                  |                 | Texas Instruments.   |         |
|     | R14          | 57-11-4332                              | 3.3 kOhm  | 23   |                 |       | ***           |                  |                 | The same of the sa |         |
|     | R 15         | 57.11.4334                              | 330 kOhm  | 21   |                 |       |               |                  |                 |  |         |
|     | R 16         | 57-11-3512                              | 5.1 kOhm  | 12   |                 | DRIG  | 85/05/29      |                  |                 |  |         |
| T U | D E R 100    | ) 85/05/29 CK                           | OPTO SENS | S09 1.920                                    | 0.793.81 PAGE 1 |       | D E R (0)     | 0) 85/05/29 CK   | UPTO SEA        | SOR 1.820.793.   | BI PASE |

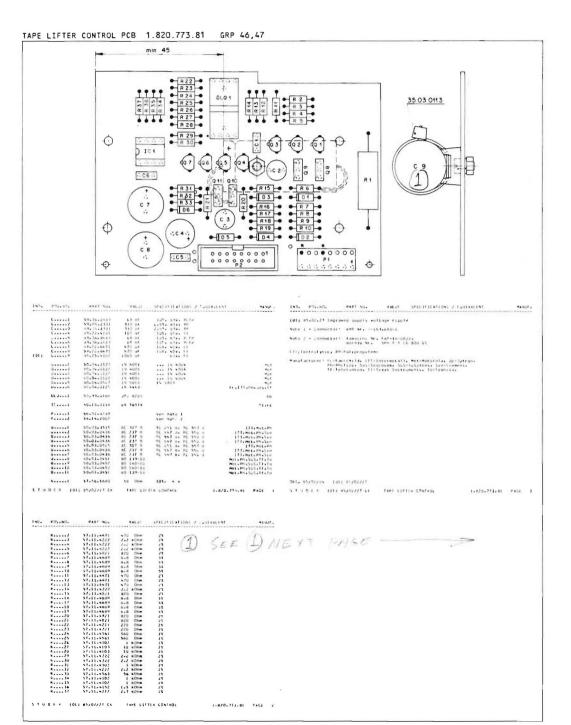
BLOCK DIAGRAM TAPE LIFTER CONTROL PCB 1.820.773

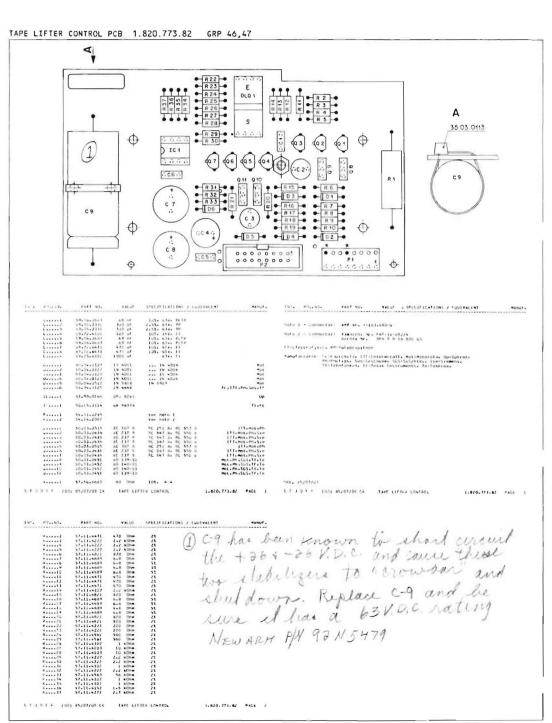


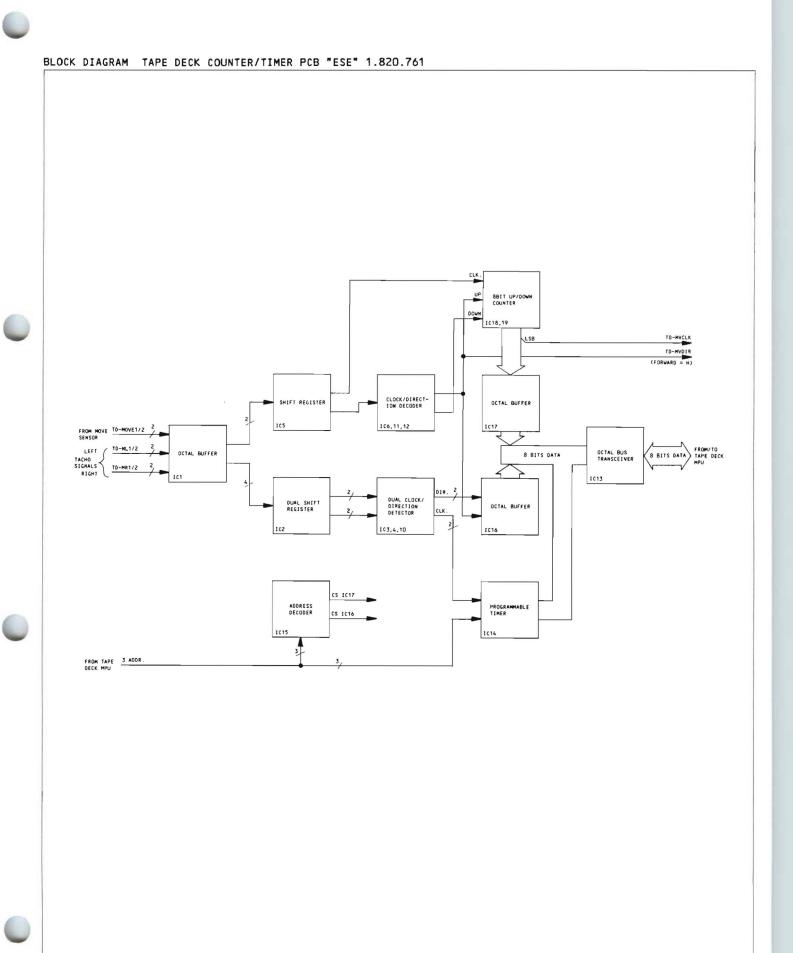
TAPE LIFTER CONTROL PCB 1.820.773.81/.82 GRP 46,47

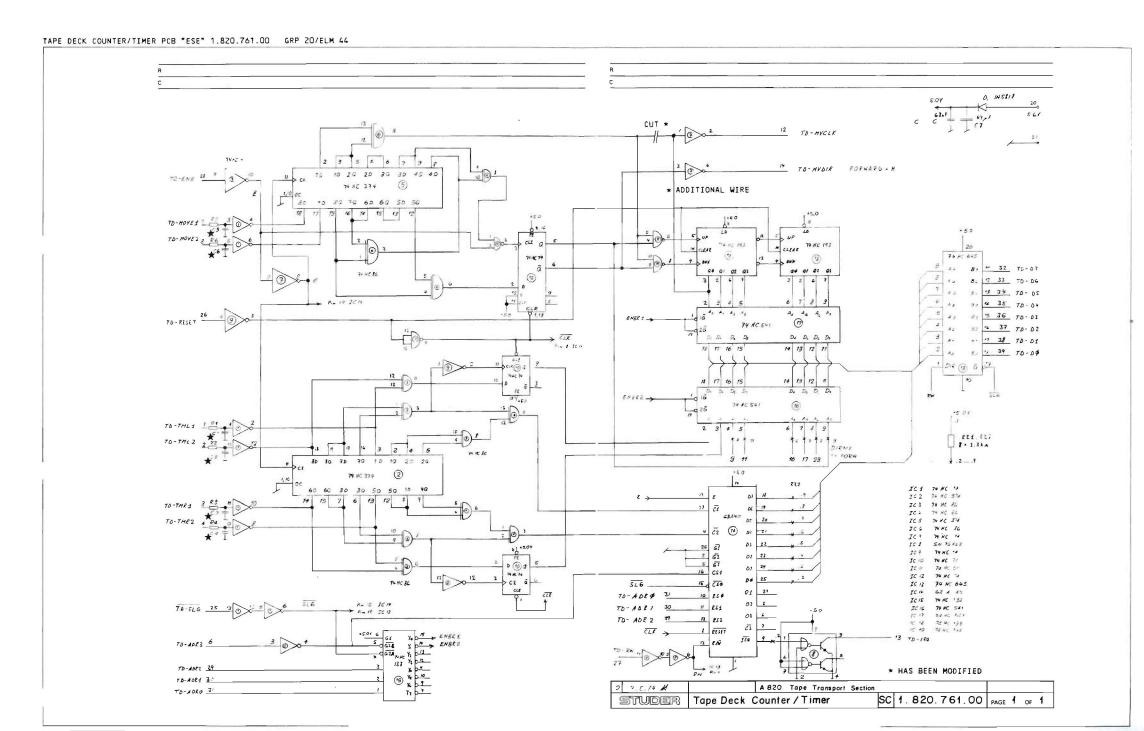


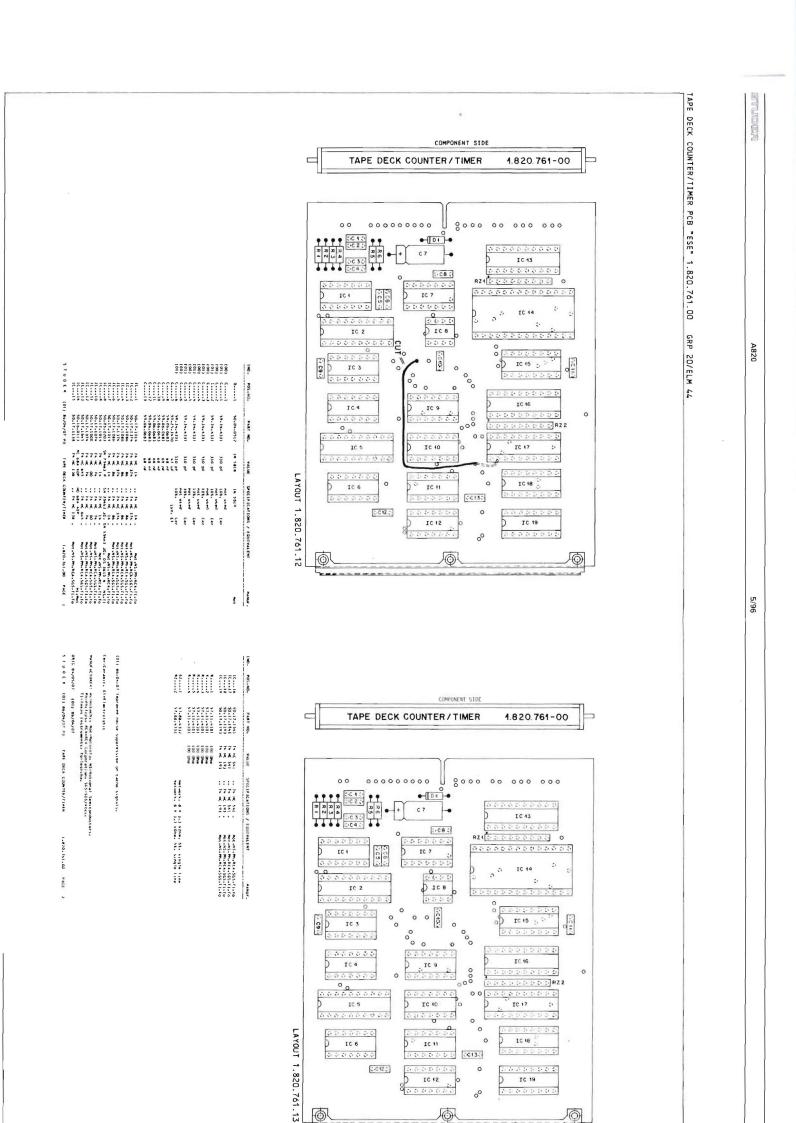
|        | A 820 Tape Transpor | rt Section      |             | i i |
|--------|---------------------|-----------------|-------------|-----|
| STUDER | Tape Lifter Control | SC 1.820.773-82 | PAGE 1 OF 1 | ı   |

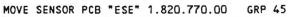


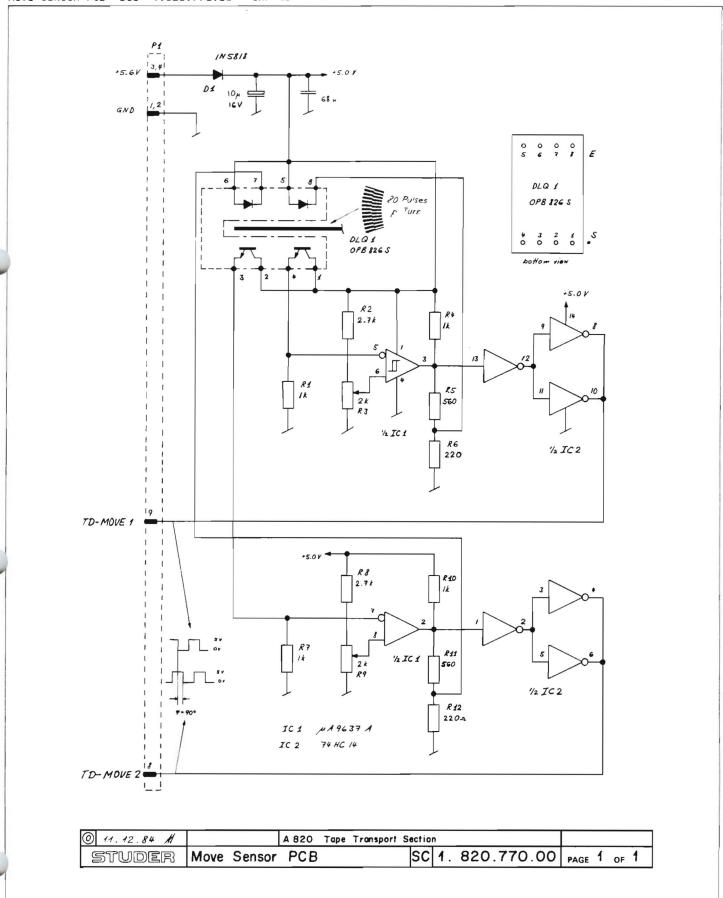




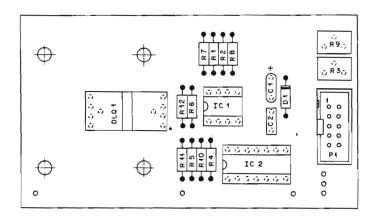








MOVE SENSOR PCB "ESE" 1.820.770.00 GRP 45



| MANUF.                  | SPECIFICATIONS / EQUIVALENT | VALUE     | PART NO.   | POS.NO. | I ND . |
|-------------------------|-----------------------------|-----------|------------|---------|--------|
| Ph                      | 20%. 16V . Sal              | 10 uf     | 59.26.2100 | C1      |        |
|                         | 101. 63V . PETP             | 68 nF     | 59.06.0683 | C 2     |        |
| Mot                     | IN 5819                     | IN 5818   | 50.04.0512 | D1      |        |
| Ор                      |                             | OPB 826 S | 50.99.0166 | 0101    |        |
| FC.TI                   | 9637 ATC                    | UA9637ACP | 50-15-0114 | 101     |        |
| AL . NS . RCA . TI . To |                             | 74 HC 14  | 50-17-1014 | 10 2    |        |
|                         | see nate 1                  |           | 54.14.2001 | P1      |        |
|                         | 23                          | 1 kOhm    | 57-11-4102 | R 1     |        |
|                         | 23                          | 2.7 kOhm  | 57-11-4272 | A2      |        |
|                         | see note 2                  | 2 kOhm    | 58.05.0202 | R 3     |        |
|                         | 23                          | 1 kOhm    | 57-11-4102 | R4      |        |
|                         | 28                          | 560 Ohm   | 57-11-4561 | R       |        |
|                         | 21                          | 220 Ohm   | 57-11-4221 | A       |        |
|                         | 21                          | 1 kOhm    | 57-11-4102 | R 7     |        |
|                         | 23                          | 2.7 kGhm  | 57-11-4272 | R B     |        |
|                         | see note ?                  | 2 kOhm    | 58.05.0202 | R 9     |        |
|                         | 23                          | 1 kOhm    | 57-11-4102 | R 10    |        |
|                         | 21                          | 560 Uhm   | 57-11-4561 | H 11    |        |
|                         | 23                          | 220 Ghm   | 57-11-4221 | R 12    |        |

1-820-770.00 PAGE 1

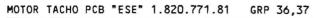
IND. POS.NO. PART NO. VALUE SPECIFICATIONS / EQUIVALENT MANUF.

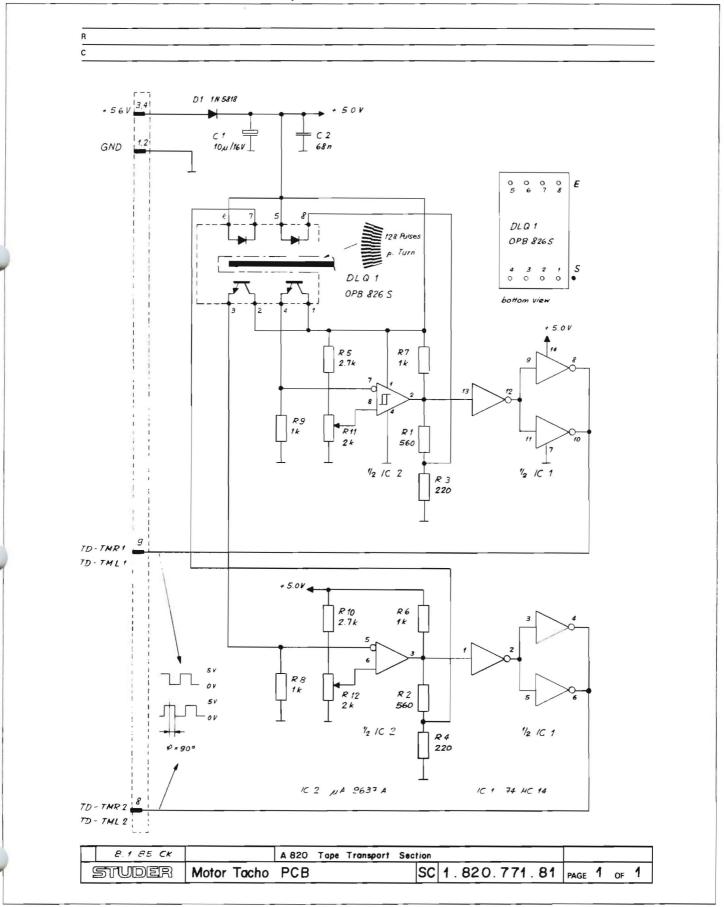
Note 1 - Connector: Yamaichi Nr. FAP-10-08/ 4 Burndy Nr. 8PH 7 8 10 800 GS

Note 2 - Potentiometer: Bourns Nr. 3296 Z - 1 - 202 Spectrol Nr. 64 Z 202 T 000

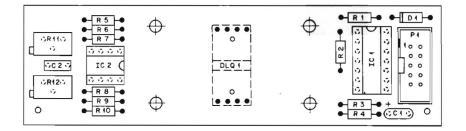
ORIG 84/12/11 S Y U O E R (00) 84/12/11 CK

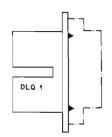
1-820-770-00 PAGE 2





MOTOR TACHO PCB "ESE" 1.820.771.81 GRP 36,37





| MANUF        | SPECIFICATIONS / EQUIVALENT | ALUE  | v    | PART NO.   | POS.NO.  | MO. |
|--------------|-----------------------------|-------|------|------------|----------|-----|
| en           | 201, 16V , Sal              | uF    |      | 59.26.2100 | C1       |     |
|              | 101. 63V . PETP             | nF    | 68   | 59.00.0683 | C **** 5 |     |
| Mot          | IN 5819                     | 818   | 14 5 | 50.04.0512 | 0 1      |     |
| Ор           |                             | 826 5 | 098  | 50.99.0166 | 0101     |     |
| MS.RCA.TI.TO | Ph. Mot.                    | 14    | 74 H | 50-17-1014 | 101      |     |
| Fc,Tl        | 9637ATC                     | STACP | U496 | 50-15-0114 | 16 2     |     |
|              | ser note 1                  |       |      | 54-14-2001 | P1       |     |
|              | 21                          | Qh=   | 560  | 57-11-4501 | R 1      |     |
|              | 21                          | Ohm   | 560  | 57-11-4501 | 8 2      |     |
|              | 21                          | One   | 220  | 57.11.4221 | R 3      |     |
|              | 21                          | Ohm   | 220  | 57-11-4221 | R 4      |     |
|              | 21                          | kOhm  | 2.7  | 57.11.4272 | R 5      |     |
|              | 21                          | kühm  | 1.0  | 57-11-4102 | A b      |     |
|              | 21                          | kOhm  | 1.0  | >7.11.4102 | R 7      |     |
|              | 21                          | k Ohe | 1.0  | 57.11.4102 | R 8      |     |
|              | 21                          | kOhm  | 1.0  | 57-11-4102 | 8 9      |     |
|              | 21                          | kOhm  | 2.7  | 57.11.4272 | R 10     |     |
|              | see note 2                  | kOhm  | 2    | 58-05-0202 | R11      |     |
|              | see note 2                  | k Ohm | 2    | 58-05-0202 | R 12     |     |

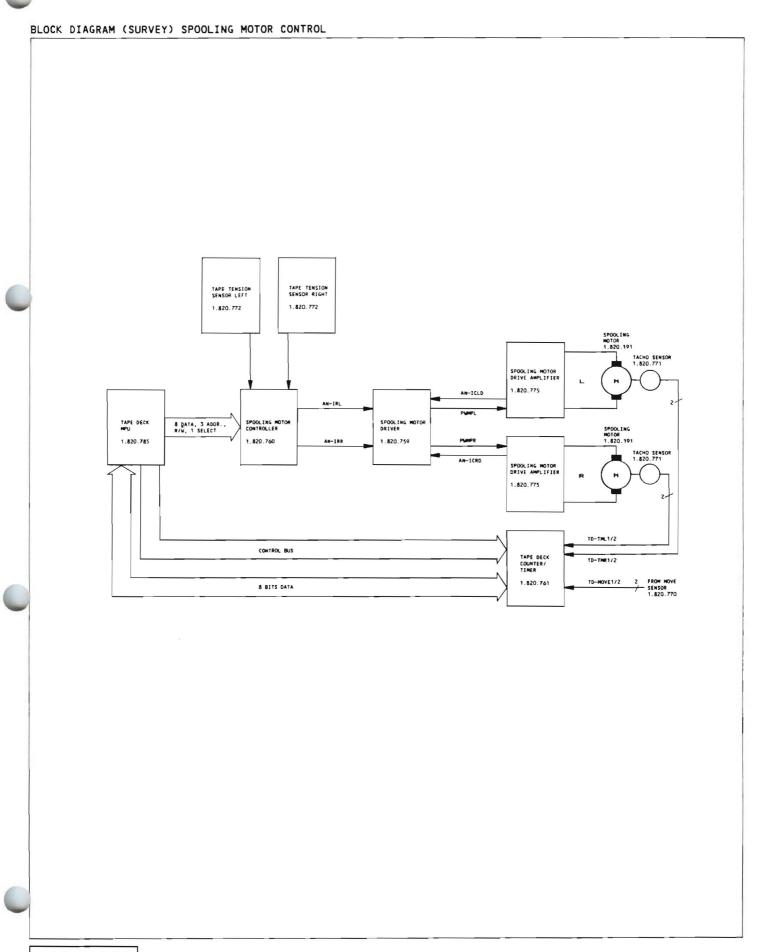
|  | TI NO. VALUE                          | 37661716471     | M2 \ E TOTALENT | 4440 |
|--|---------------------------------------|-----------------|-----------------|------|
|  |                                       |                 |                 |      |
| Note 1 - Connector:                                | Yamaichi Nr. FAP-                     | 10-08/ 4        |                 |      |
|  | Burndy Nr. BPH                        |                 |                 |      |
|  |                                       |                 |                 |      |
| Hote 2 - Potentiometer:                            | Sourns Nr. 3296                       | 1 - 1 - 202     |                 |      |
|  | Spectrol Nr. 64 2                     | 202 T 000       |                 |      |
|  |                                       |                 |                 |      |
| sal=Solid aluminium                                |                                       |                 |                 |      |
| Manufacturer: Fc=Fairch<br>Up=Optron<br>T1=Texas i | Ph=Philips, RCA=<br>nstruments, To=To | Radio Corporati |                 |      |
|  |                                       |                 |                 |      |
|  |                                       |                 |                 |      |
|  |                                       |                 |                 |      |
|  |                                       |                 |                 |      |
|  |                                       |                 |                 |      |
|  |                                       |                 |                 |      |

5 T U O E 9 (00) 85/01/08 CK MOT

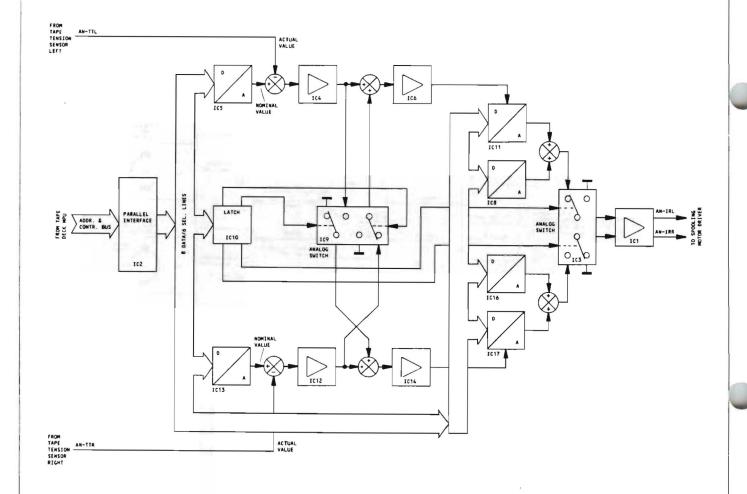
1-820-771-81 PAGE 1

T U D E R (00) 85/01/08 CH HOTOR TACHO

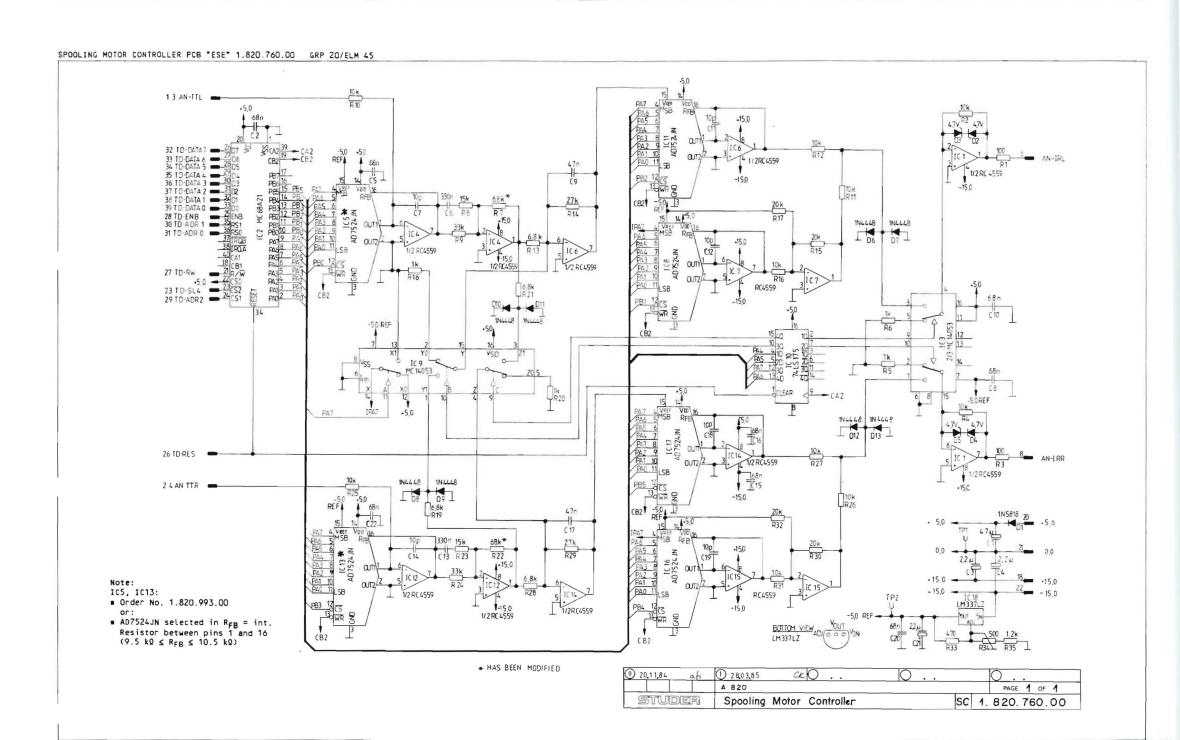
1.820.771.81 PAGE



BLOCK DIAGRAM SPOOLING MOTOR CONTROLLER PCB "ESE" 1.820.760



A820



GRP 20/ELM 45

A820

5/104

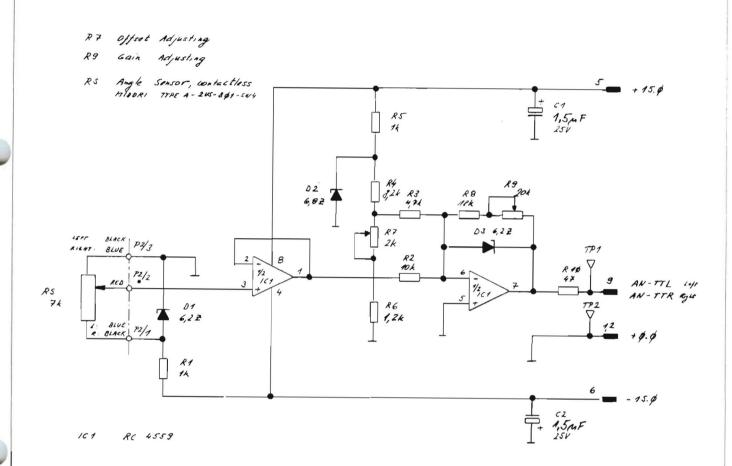
SPOOLING MOTOR CONTROLLER 1.820.760-00

| Similar of the state of the sta |                  |   |  |
|--|------------------|---|--|
| REAL PROPERTY OF THE PROPERTY  | 5 1 0 0          |   | 29 25  |
| REAL PROPERTY OF THE PROPERTY  | . 3              | **************************************  | •  |
| The control of the co | 1071 85/09/19 CK |   |  |
| A CONTRACT OF THE CONTRACT OF  | Santing.         | 10 KON 11 L KON 10 L KON 11 L | CONTROL OF STATE OF S |
|  | MOTOS CONTROLLEN | 222222 2 2 2  | THE COLUMN TARGET STATE OF THE COLUMN TARGET STA |
|  |                  |   | #  |
| THE STATE SQUARES STATES OF THE STATES CONTROL CONTROL  (II) States without the states tracked before your.  (II) States without the states tracked before your.  (II) States with the states of the tracked your.  (II) States with the states of the states  | 5 35v4           |   |  |
| A linearest expanses of tage feature control.  It warms of tage tenture law-back pairs.  The Latest expanses in Park in [Avenue on Schiolar]  The Latest expanses in Park in [Avenue on Schiolar]  The Latest expanses in Park in [Avenue on Schiolar]  The Latest expanses in Park in [Avenue on Schiolar]  All the Latest expanses in Park in [Avenue on Schiolar]  All the Latest expanses in Park in [Avenue on Schiolar]  All the Latest expanses in Park in [Avenue on Schiolar]  All the Latest expanses in Park in [Avenue on Schiolar]  All the Latest expanses in [Avenue on Schiolar] | 3 1 0 0 1 2      | (117%) 21ML   | BIT BY DE  |
| of the invariant control.  The Hermitian with the second of the Hermitian  | x3 61/60/59 (20) | #71574 IIO) 025   | The lattered explanate to the form the latter to the latte |
| To control.  Transport to the second to the  | 24110045 WI      | 41700/5# (20)   | of tape indices  on the leaf back  on the leaf back  of the leaf back  if the leaf b |
| 1  | TON COMPROCES    |   | STATE OF STA |
| ***  |                  |   | THE STATE OF THE S |
| · i  |                  |   |  |

| e<br>0                               | 90         |          |            | W          | ш           | 0        | 0          | ·····      | 0          | ******      | W          |             |           |            |            | 1           | 1          | 1         |             | 1          | £1          | 1          |            |             | ·           | 610         | 6           | 6         |             |            | 1         | ·         |            | 6         |              |
|--------------------------------------|------------|----------|------------|------------|-------------|----------|------------|------------|------------|-------------|------------|-------------|-----------|------------|------------|-------------|------------|-----------|-------------|------------|-------------|------------|------------|-------------|-------------|-------------|-------------|-----------|-------------|------------|-----------|-----------|------------|-----------|--------------|
| [02]                                 |            |          |            |            |             |          |            | 2          |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           | •         | -          |           |              |
| 102) 85/00/19 CK                     | 20.04.0123 | 50.0.012 | 30-04-2125 | 50-04-8125 | 20.0 - 0125 | 50-00125 | 50.04.0127 | 50.04-1123 | 30-04-1127 | 50.0 1123   | 20-04-1153 | 30.30.3911  |           | 8-04-06-87 | 44725-4544 | 59-00-0003  | 54-14-1100 | 59.1-1100 | 24.00-047 F | 99.36.0683 | 59.26.058   | 57.34.1100 | 99-06-0334 | 34-34-1100  | 39.34.11.00 | 39.08.000   | 19.00.047)  | 59-25-058 | 50.14.1100  | 54.06.4334 | 39.00.048 | 34-55-554 | 39-75-5779 | 84.08.08H | 54-50-0470   |
| *                                    |            |          |            |            |             |          |            |            |            |             |            |             |           | *          | *          | -           | 0          | 0         | -           | 4          | 3           | a          |            | 9           | G.          | -           | *           | -         | G           | *          | *         | 0         | 4          | -         | a            |
| PROBLEM MOTOR CONTROLLER             | 11         |          | 8375 MI    | IN SACE    | 14 +++ B    | IN CCCI  | 111 +44.8  | v. 1       | v          | 4.7 V. 7    | Y. !       | WIRS AT     |           | 20.00      | 2-7 14     | 28 25       | 10.04      | 10.00     | .7 .00      | 20 110     | 44. 60      | 40.04      | 330 per    | 40 04       | 10 34       | 20.00       | 47 14       | 20.00     | 40.01       | 330 AF     | 20.00     | 2.2 118   | 2-2 40     | 20.00     | 67 118       |
| ě                                    |            |          |            |            |             |          |            | jø.        | -          |             | a          |             |           |            |            |             |            |           | _           |            |             |            | 10.        |             |             |             | _           |           |             | 101        |           |           |            |           |              |
| 8                                    |            |          |            |            |             |          |            | MERZE      | BZ 1 8 30  | 218173      | Time 7.    | IN SHIP     |           |            |            |             |            |           | 02          |            |             |            | *          |             |             |             | 20          |           |             | 5          |           |           |            |           |              |
| Fig.                                 |            |          |            |            |             |          |            | 447.       | 6 V 7.     |             | 443.       |             |           |            | 254. 341   |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           | 234.      | 284.       |           | BALL AND AND |
| 2                                    |            |          |            |            |             |          |            | · 02855C   | . BIXX'50  | 365826      | · BLANK    |             |           |            | 747        |             | C =        | Co        |             |            |             | 60         |            | 4.3         |             |             |             |           |             |            |           |           | 5.40       |           | 4.4          |
| -                                    |            |          |            |            |             |          |            |            | 17.5       | 440         | CV)        |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| 1.820.741.00                         |            |          |            |            |             |          |            | 1 197      | 5 Ge2      | *** CMD 4.1 | 195        |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
|                                      |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| 25                                   |            |          |            |            |             |          |            | 177.56     |            | 177.505     |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| -                                    |            |          |            |            |             |          |            |            | 2.16       | 2.00        | 5.00       | ot          |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| -                                    |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             | 2           |             |             |           |             |            |           |           |            |           |              |
|                                      |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             | _           | 2           |             |           |             |            |           |           |            |           |              |
|                                      |            |          |            |            |             |          |            |            |            |             |            | S 15        | R 14      | K          | × 32       | K 31        | A 10       | 8 28      | 4           | 8 21       | £ 7 to      | R 25       | R          | 4 23        | S 72        | 8           | S?          | * 20      | 8 19        | KIN        | A 17      | R         | ******     | *****     | 2            |
|                                      |            |          |            |            |             |          |            |            |            |             |            | . 15        | ,         |            | . 32       | :           | . 30       | . 79      | . 7 1       | . 27       | .70         | ;          |            |             | 22          |             | -           | .20       | Ġ           | -          | -         |           | ;          |           | :            |
|                                      |            |          |            |            |             |          |            |            |            |             |            |             | >0        | ,          | *          | ,           |            |           | ú           | v          | *           | ,          | ¥          | *           | ¥           | *           |             | *         | *           | *          |           |           | ,          |           |              |
| test avakta tx                       |            |          |            |            |             |          |            |            |            |             |            | \$7-11-4122 | 38.03.010 | \$7.11.447 | \$7.11.320 | \$7-11-5101 | \$7-11-370 | 57-11-527 | 57-11-508/  | M-11-4131  | \$7.11.6103 | 37.11.4103 | 7.11.01    | \$7.11.4153 | 7.11.48     | \$7-11-4333 | \$7.11.468/ | 57-11-610 | \$7.11.4687 | 17.11194   | 17.11.320 | 37.11.415 | 57.11.320  | 57.11.577 | 37-11-408    |
| ~                                    |            |          |            |            |             |          |            |            |            |             |            |             |           |            | -          |             |            |           | 7           |            |             |            |            |             |             |             |             |           |             | 2.0        | •         |           | -          | -         |              |
| 10001                                |            |          |            |            |             |          |            |            |            |             |            |             | 500 04    | 470 ON     | 20 Albra   | 10 AChie    | 20 x05     | 27 x0na   | ALB KON     | 10 105     | to sone     | 10 105     | 33 KIIP    | NUN SE      | NB KON      | 33 x Drue   | 0-8 KDhe    | I KONA    | 0.0 Mins    | I some     | 20 Mine   | TO NON    | 20 1000    | ST NOW    |              |
| 8                                    |            |          |            |            |             |          |            |            |            |             |            |             | ,         | ,          | •          | *           | •          |           | •           | •          | •           | •          | •          | *           | •           | •           | *           | ,         | •           | •          | 3         | •         |            | •         | •            |
| 9                                    |            |          |            |            |             |          |            |            |            |             |            | 3.5         |           | *          | 52         | 3.5         | 15         | 3.5       | 51          | 32         | 3,5         | 3.5        | 34         | 52          | 1,5         | 15          | 52          | 31        | 51          | 32         | 7,        | 3,4       | 32         | 31        | 3.5          |
| . 25                                 |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| 9                                    |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| PATRICIAL COLLEGION OF THE PATRICIAL |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |
| DWT#51154 1.425.763.00               |            |          |            |            |             |          |            |            |            |             |            |             |           |            |            |             |            |           |             |            |             |            |            |             |             |             |             |           |             |            |           |           |            |           |              |

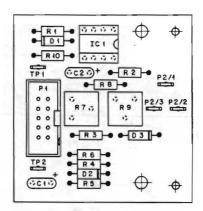
9354

TAPE TENSION SENSOR PCB 1.820.772.00 GRP 42,43



| 0 18.2.85 W | 7                                       |             |
|-------------|---|-------------|
| STUDER      | Tape Tension Sensor PCB SC 1.820.772.00 | PAGE 1 OF 1 |

TAPE TENSION SENSOR PCB 1.820.772.00 GRP 42,43



| -NO. PART NO.   |           |  |
|---|-----------|--|
| S-NG. PART NO.  | . POS-NO. | 180.   |
|   |           |  |
| 1 59.26.5159  | C1        |  |
| 2 59.26.5159  | C 2       |  |
|   |           |  |
|   |           |  |
|   |           |  |
| 50.04.1118  | 0         |  |
| 50-09-0107  | 101       |  |
| 54-14-2001  | P1        |  |
| -2/1 54-02-0120   | V 2/1     |  |
|   |           |  |
|   | P 2/3     |  |
|   |           |  |
| 57-11-4102  | 8 1       |  |
| 2 57.11.4103  | 8 2       |  |
| 3 57.11.4472  | 8 3       |  |
| 4 57-11-4822  | R         |  |
| 57.11.4102  | H 5       |  |
| 57.11.4122  | R         |  |
| 7 58.01.8202  | H 7       |  |
| 8 57-11-4183  | 8 8       |  |
|   | H 9       |  |
|   | R 10      |  |
| 64 02 0330  | 70        |  |
|   |           |  |
| \$9.26.5159 \$0.04.1102 \$0.04.1102 \$0.04.1102 \$0.04.1102 \$0.04.1108 \$0.09.0107 \$4.14.2001 \$4.02.0320 \$4.02.0320 \$7.11.4102 \$7.11.4102 \$7.11.402 |           | C2 02 03 1C1 p1 p2/1 p2/2 p2/3 81 82 83 R4 H5 R6 H7 R8 |

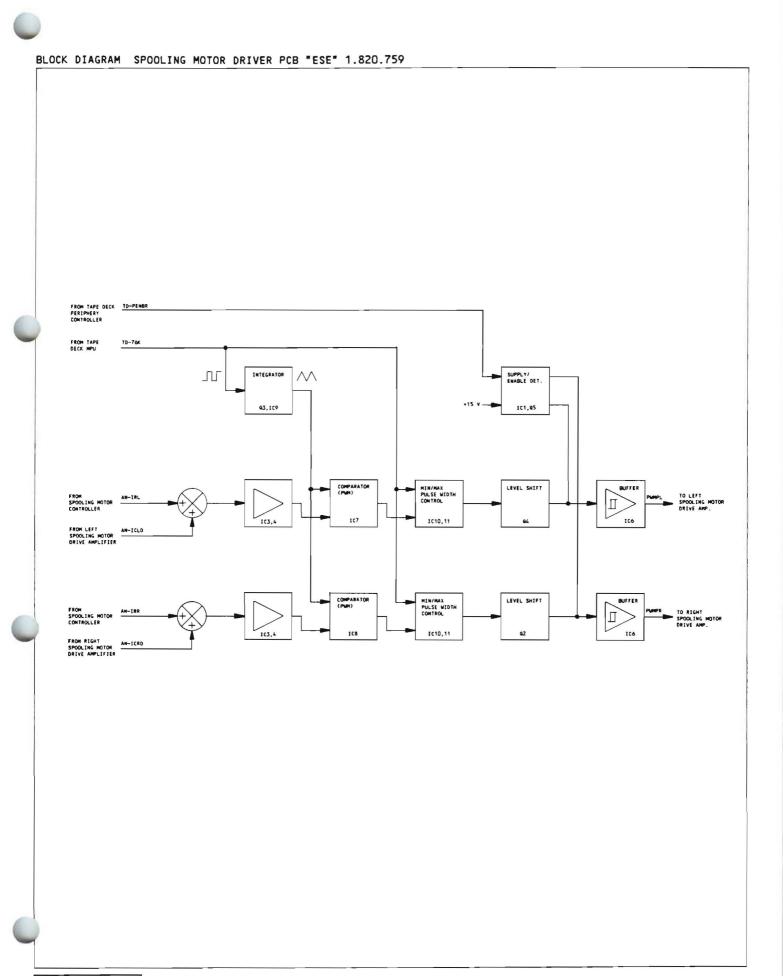
S T U O E R (OO) 85/02/18 PB TAPE TENSION SENSOR 1.820.772.00 PAGE 1 IND. POS.NO. PART NO. VALUE SPECIFICATIONS / EQUIVALENT MANUF. Note 1 - Connector Burnay BPH 7 B 10 800 GS Yamaichi FAP-10-08//4 Note 2 - 2 kOne Potentioneter: linear Allan Bradley E 26 202 Bourns 386 F-1-202 Spectrol 63 M 202 TO10 Hote 3 - 20 kOhm Potentiometer, linear
Alian Bradley E 20 20)
Bourns 166 F-1-203
Spectrol 63 M 203 Told

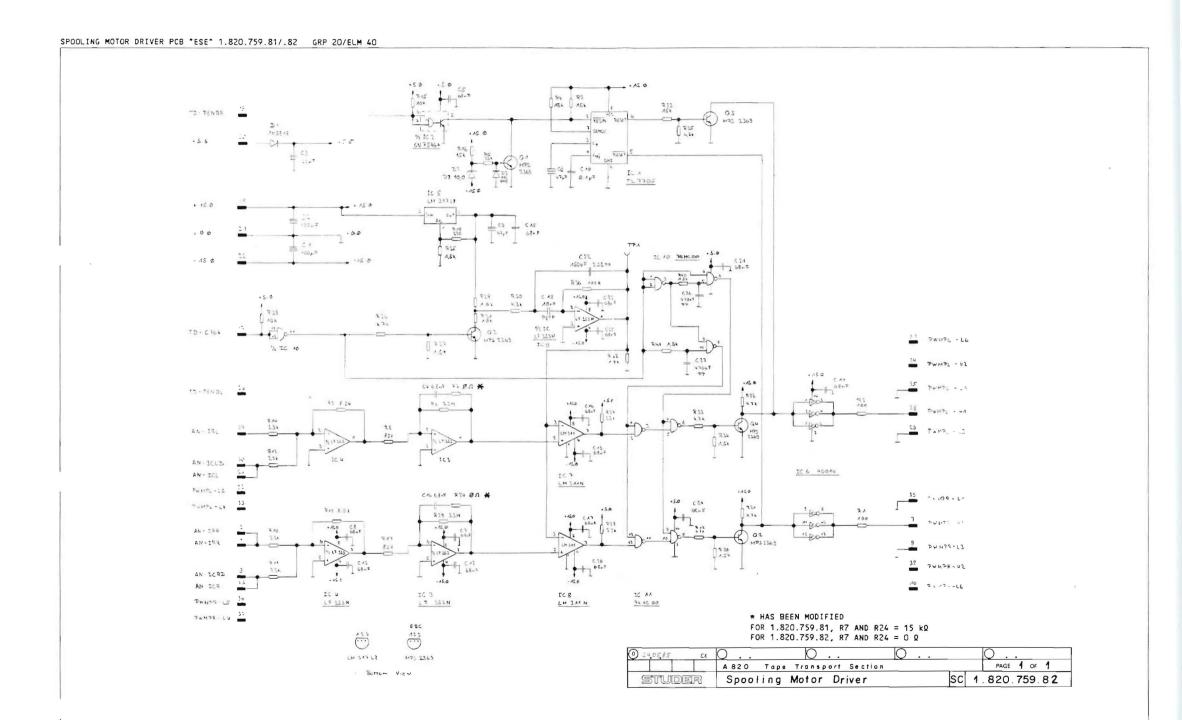
MANUFACTUREK: ITT-ITT/Intermetall, NEC-Nippon Electric Corporation,
Ph-Philips, Ra-Raytheon, Semisercosem.

ORIG 95/02/18

S T U O E P (00) 85/02/18 PB TAPE TENSION SENSOR

1-820-772-00 PAGE 2





5/110

II. 1705 IV. 174667 II. 17454 N II. 072 GF U 1853 N II. 072 GF U 1853 N \*\*\*\*\*\*\*\* \*\*\*\*\*\* \*\* Inspired by wire bringer sted by wire bridge) - 820 HY 82 \*ANG!

4.820.759-8**2** 

C 6 C 107

R 199

(°)

(3) (3) (4) (5) (7) (8) (8) (8) (9) (10

IC 44

SPOOLING MOTOR DRIVER

\$250 \$250 \$39

(C27.)

- R24 - CONS - C

€-C20€

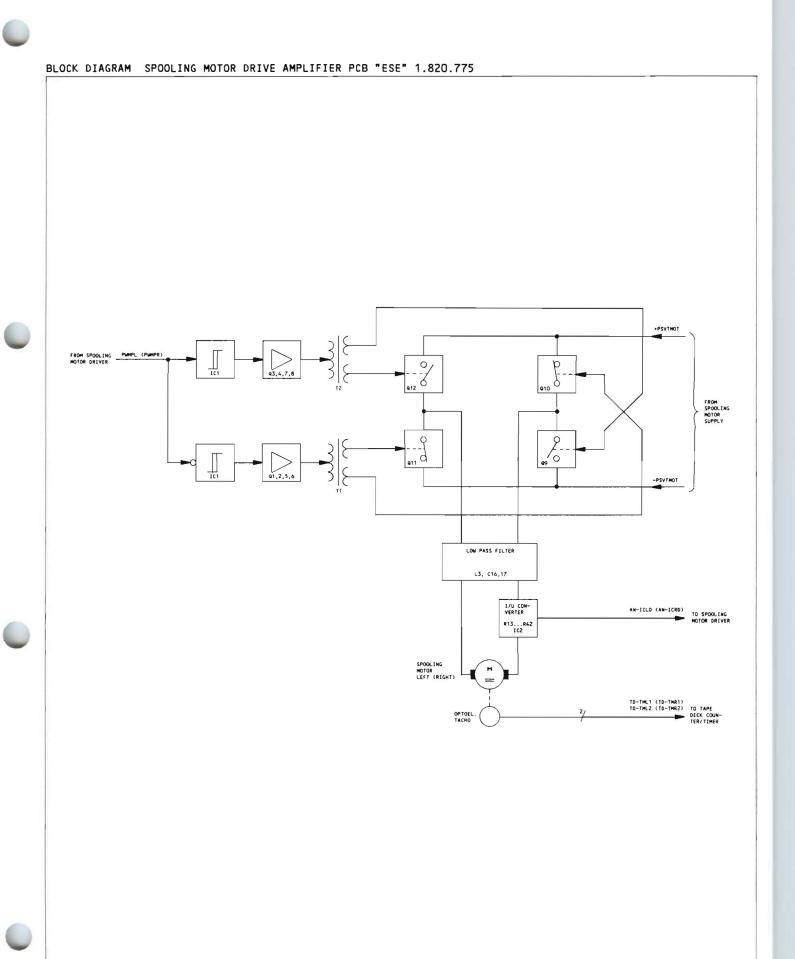
0 0 0 0 0 0 #40 R41

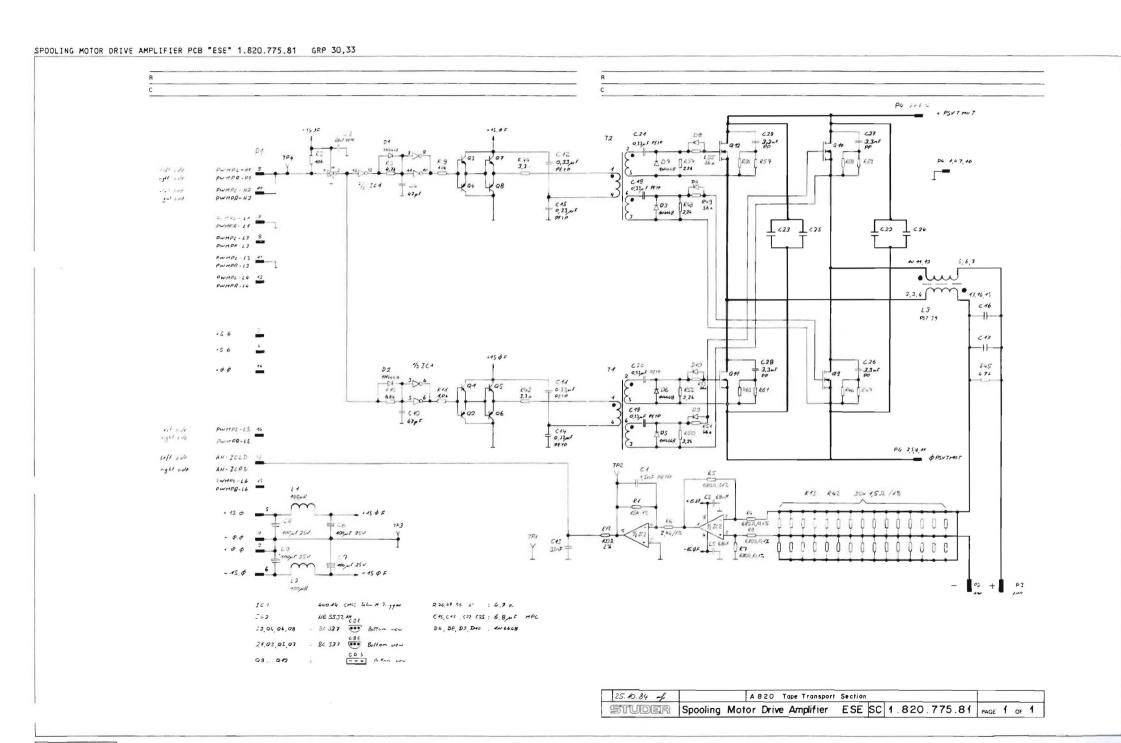
C 195

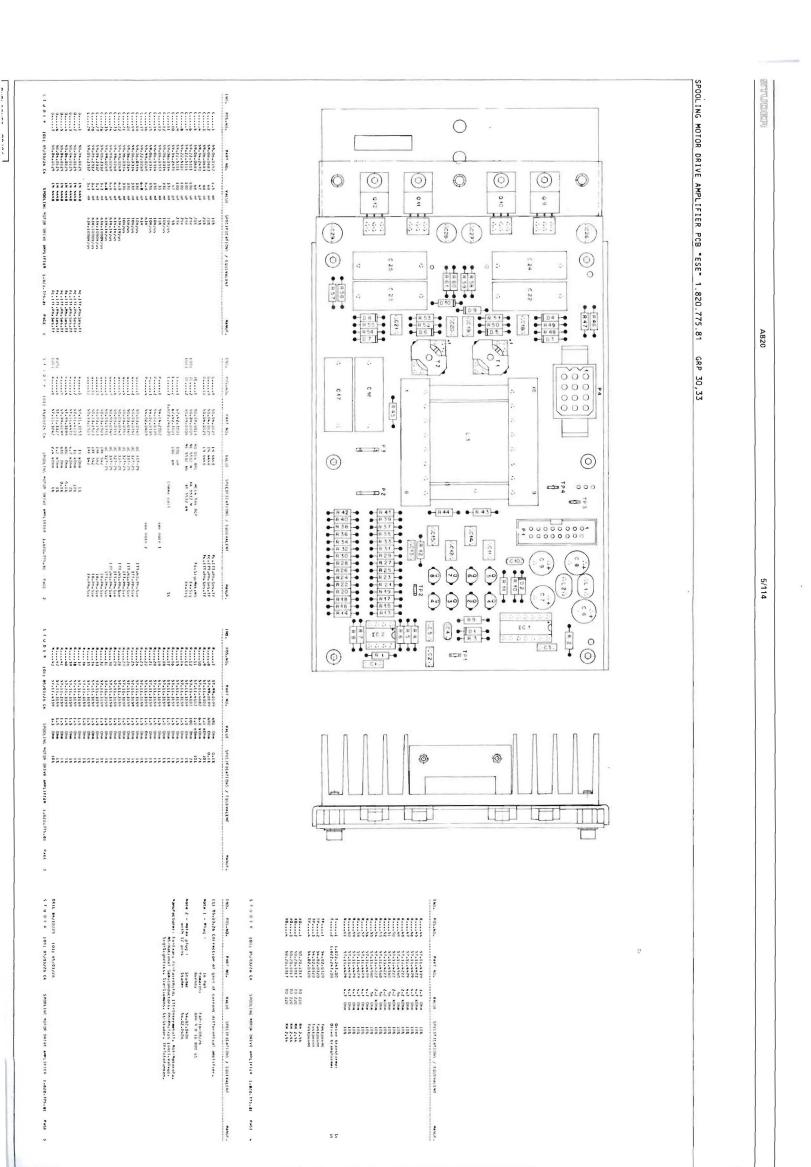
FOR 1.820.759.81, R7 AND R24 = 15 kg 100 Ones 22 22 222 22 2222

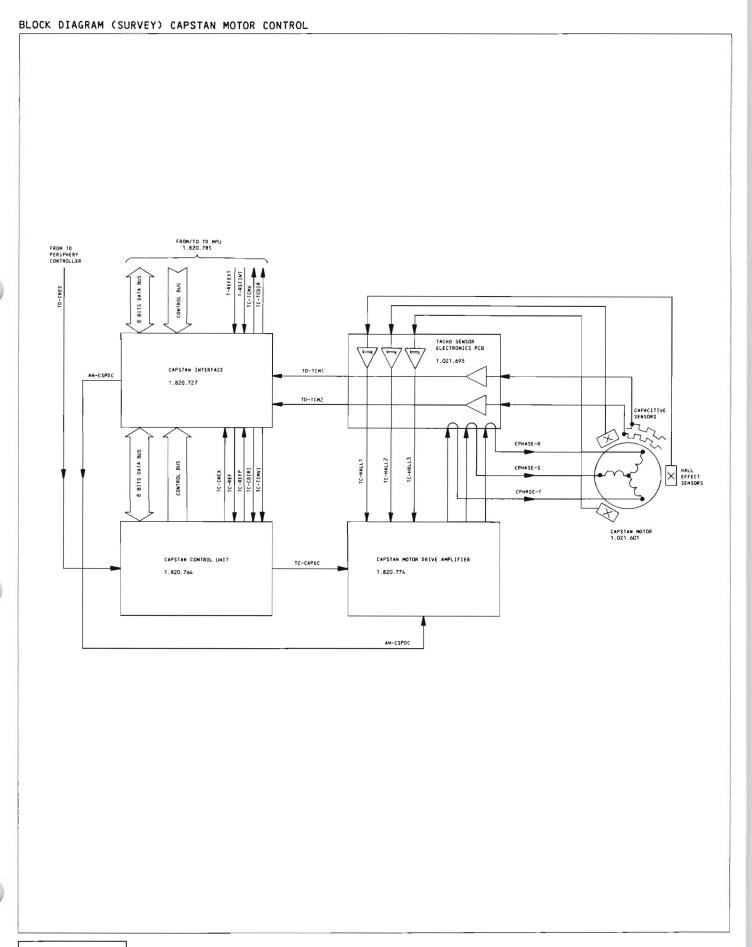
FIRST STATES

A820

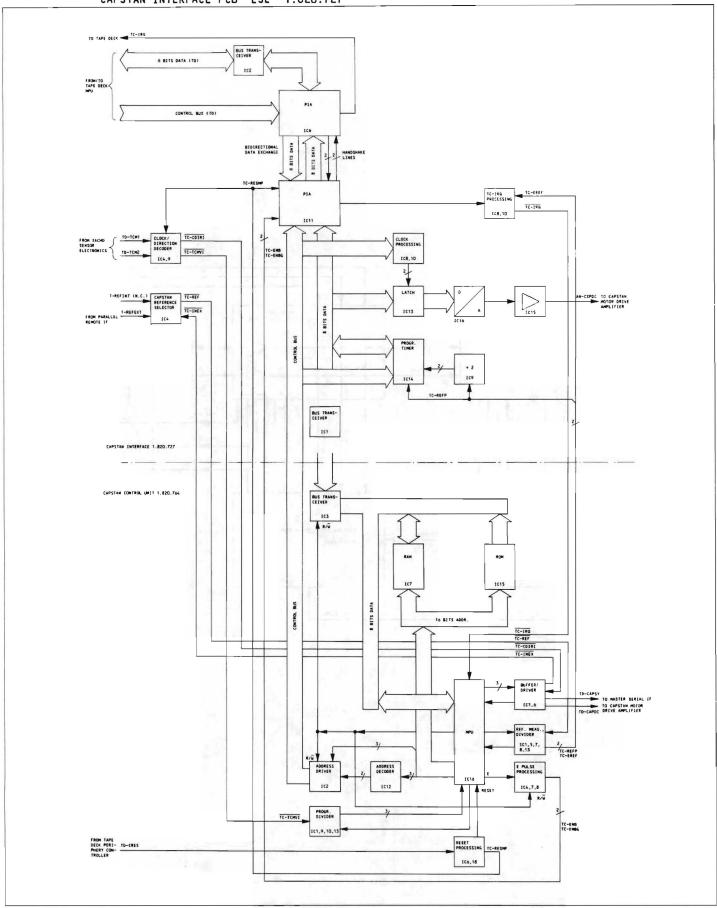


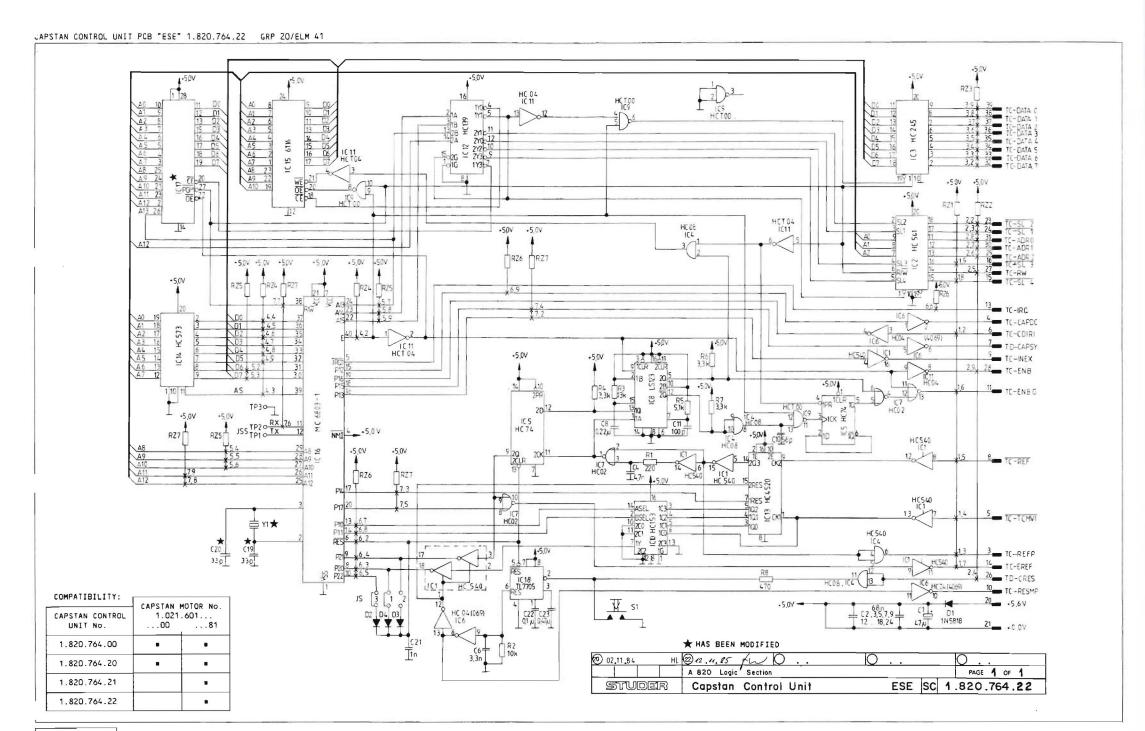




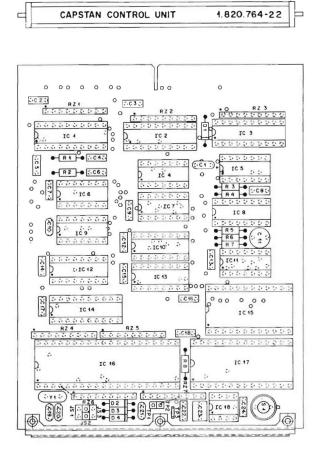


BLOCK DIAGRAM CAPSTAN CONTROL UNIT PCB "ESE" 1.820.764 CAPSTAN INTERFACE PCB "ESE" 1.820.727

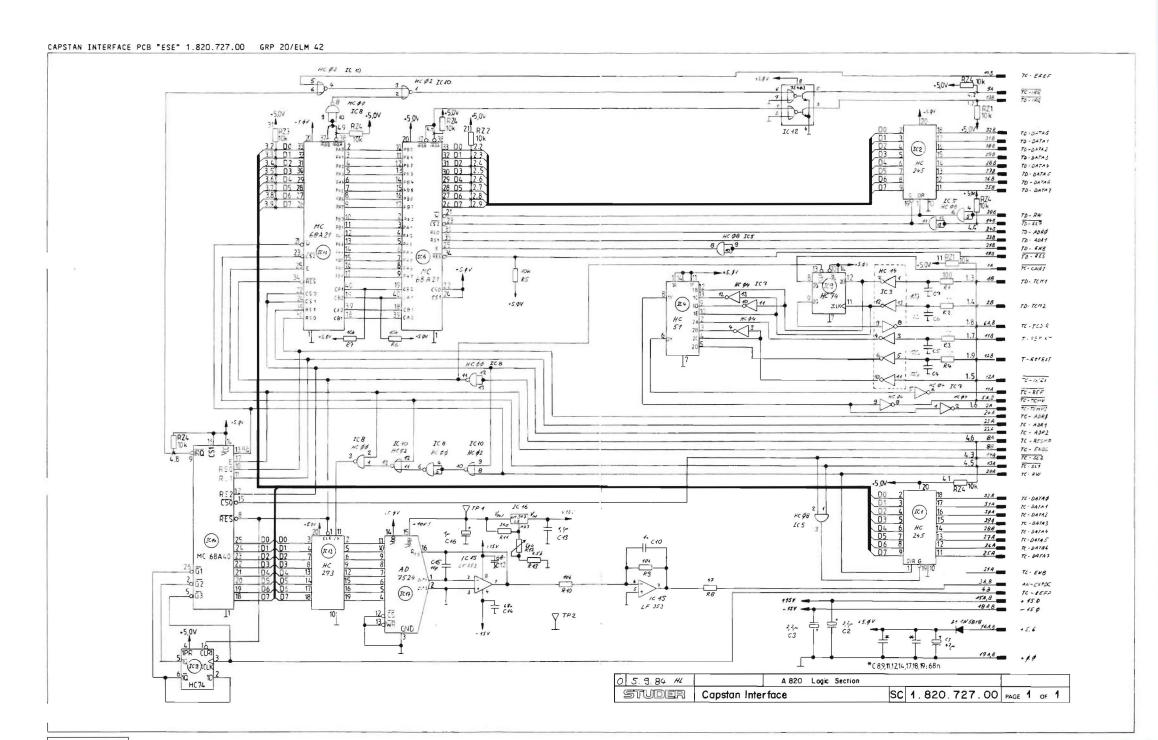




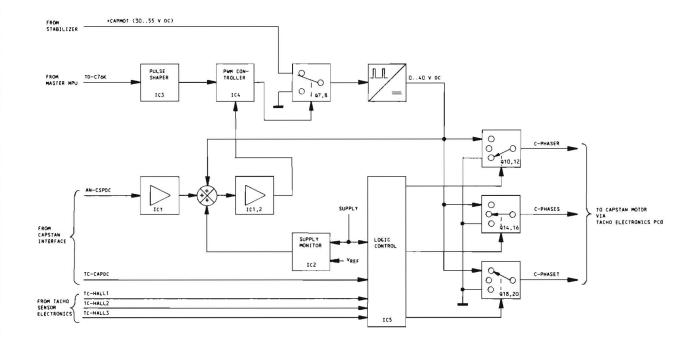
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BLOCK DIAGRAM CAPSTAN MOTOR DRIVE AMPLIFIER PCB "ESE" 1.820.774



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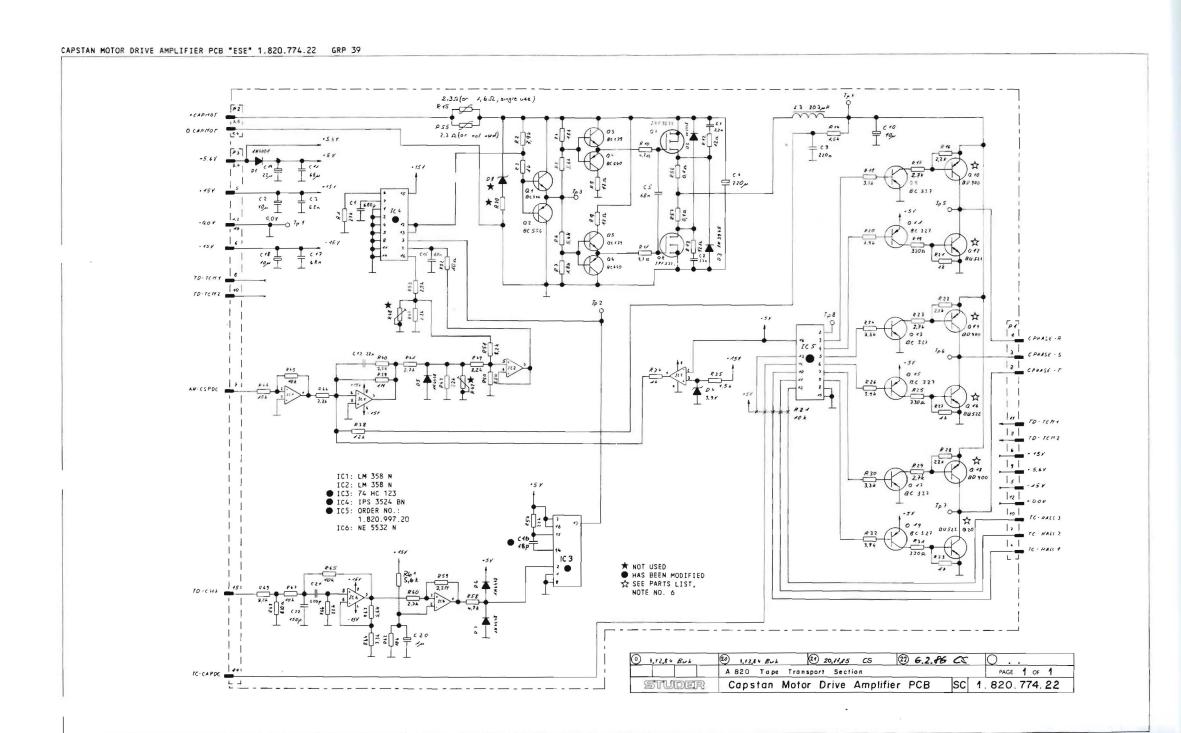
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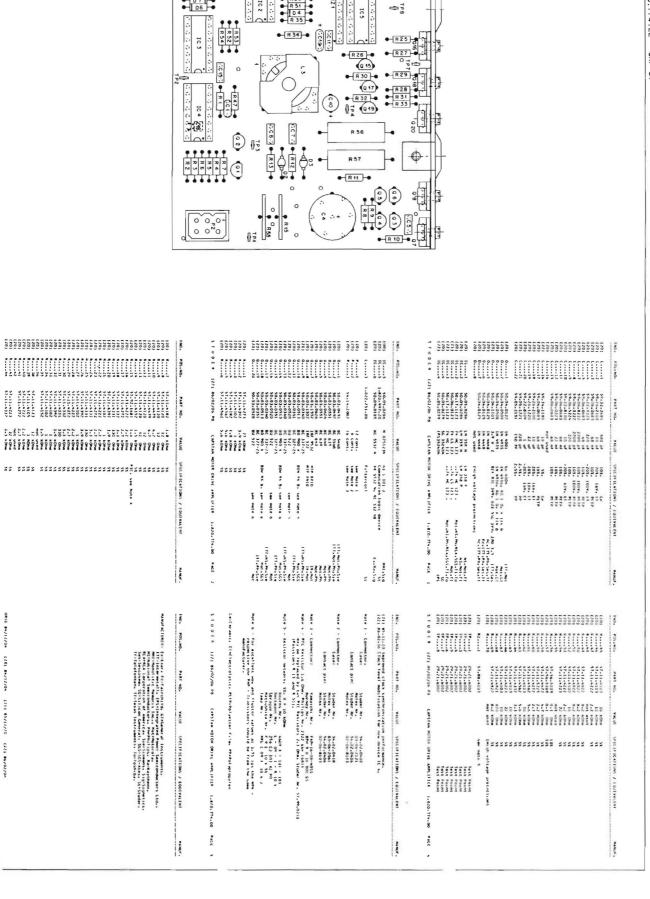
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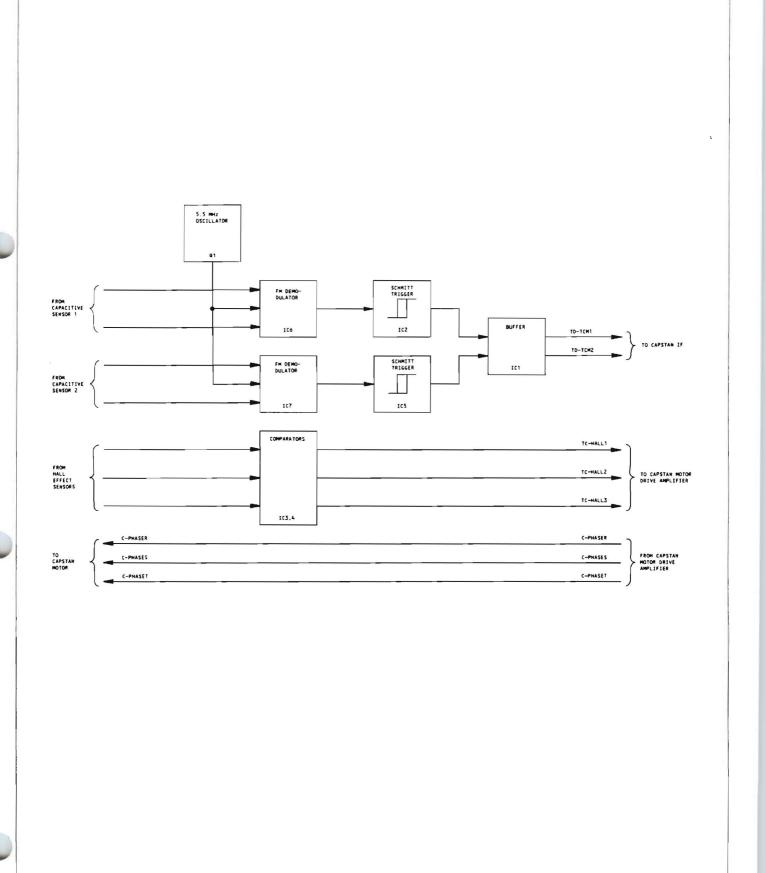
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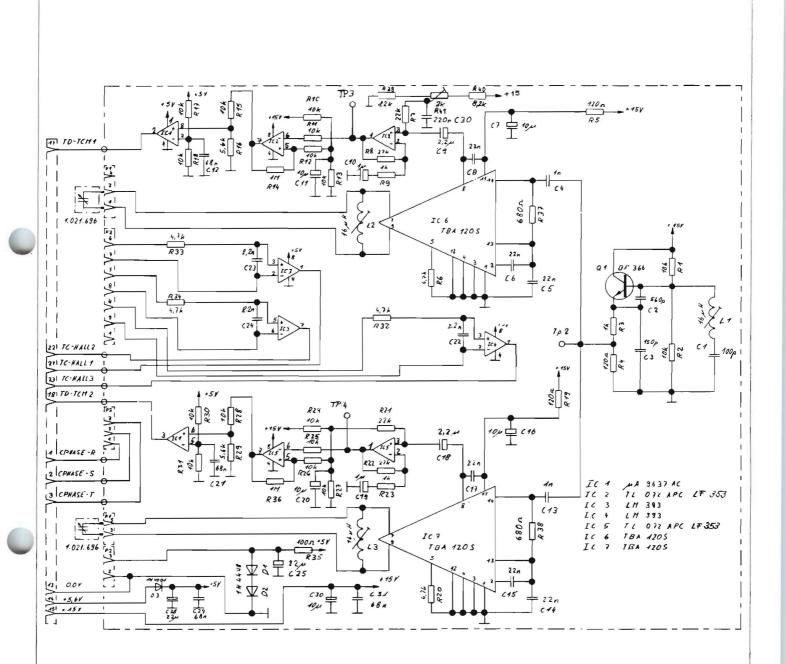
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BLOCK DIAGRAM TACHO SENSOR ELECTRONICS PCB "ESE" 1.021.695



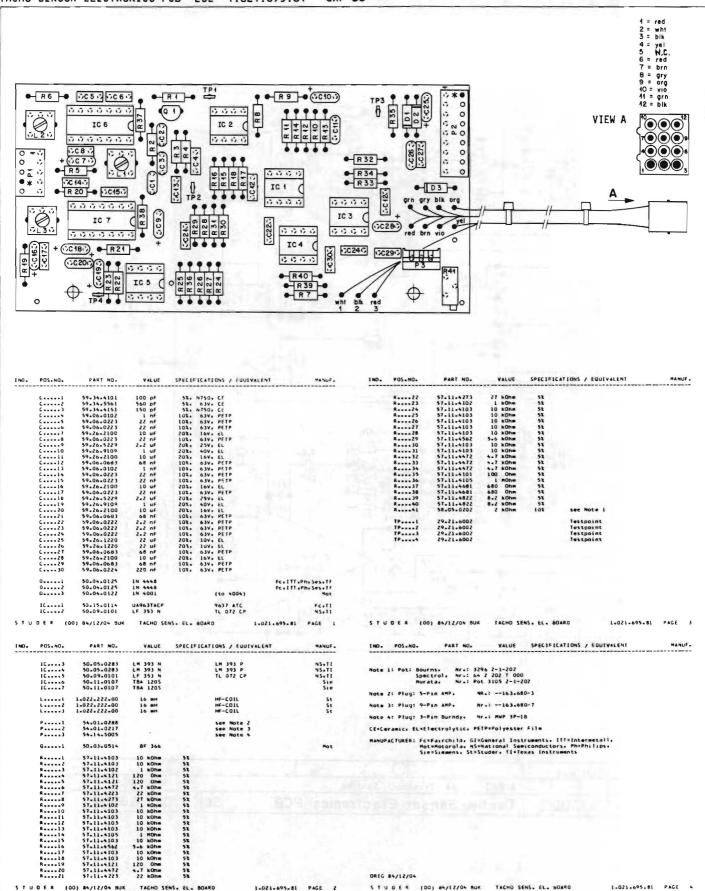
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TACHO SENSOR ELECTRONICS PCB "ESE" 1.021.695.81 GRP 38

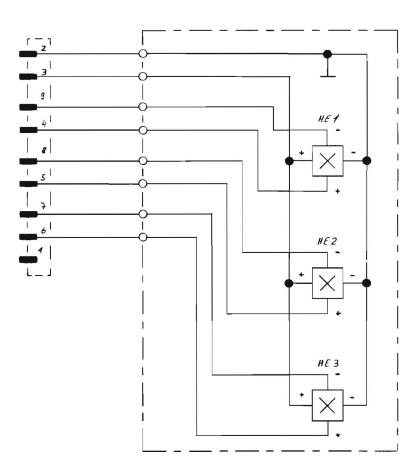


| 1.12.84 Buk |                              | 0        |              |
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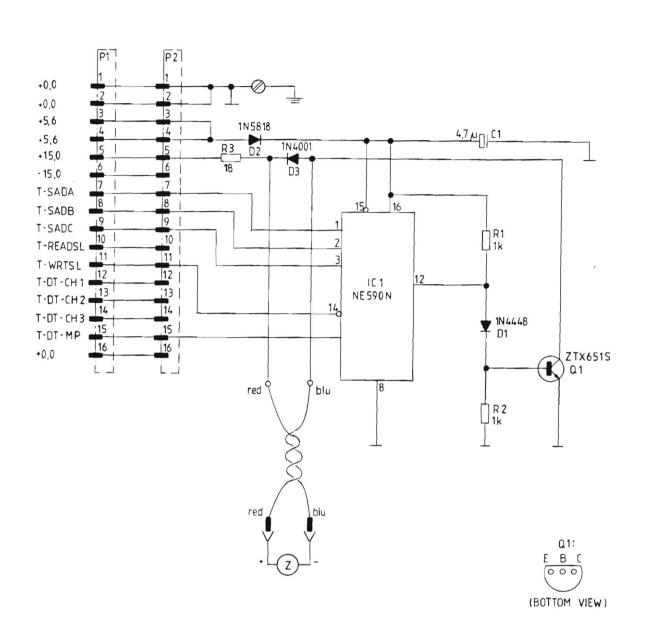


HALL SENSOR PCB 1.021.697.00 (INTEGRATED IN CAPSTAN MOTOR)



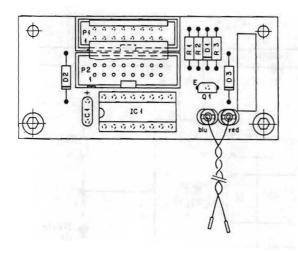
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|   |          |     | A 820 | Tape Transport | Section | PAGE 4     | OF ¶  |
| ſ | STU      |     | Hall  | Sensor PCB     |         | SC 1.021.6 | 97.00 |

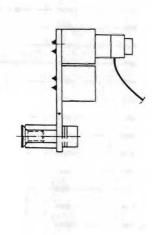
TIME COUNTER CONTROL PCB (OPTION) 1.820.861.00



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|-----------------|-------------------------|--------------|
|                 | A 820 Options           | PAGE 1 OF 1  |
| STUDER          | Time Counter Control SC | 1.820.861.00 |

TIME COUNTER CONTROL PCB (OPTION) 1.820.861.00





| / EQUIVALENT  | ICATIONS / | SPECIF   | VALUE  |                              | PART NO.  | POS.ND.  | . CMI  |
|---------------|------------|--|--|------------------------------|---|--|--|
| 1             | 10V, Sal   | 201,   | 7 uF   | 4.                           | 59.26.1479  | C1   |  |
|               |            |  | 4448   |                              | 50-04-0125  | U1   |  |
|               | 19         | IN 58  | Sale   | 1N .                         | 50-04-0512  | 02   |  |
|               | 4004       | IN   | 4001   | 114                          | 50-04-0122  | 03   |  |
|               |            |  | 90 N   | ME !                         | 50.15.0102  | 101  |  |
|               | . 1        | 100 no   |  |                              |   | P1   |  |
|               |            |  |  |                              |   | P 2  |  |
|               |            |  |  |                              | 54-02-0320  | P 3  |  |
|               |            |  | 651 5  | ZTE                          | 50.03.0523  | 01   |  |
|               |            | 52   | kOne   | 1                            | 57-11-4102  | R 1  |  |
|               |            | 52   | kOhm   | 1                            | 57-11-4102  | R 2  |  |
| Philips Mr. 2 | sistor. P  |  | One  | 18                           | 57-19-0160  | A 3  |  |
|               |            | 10v, Sal<br>19<br>4004<br>te l<br>te l<br>te l | IN 5819IN 4004  see note 1 tee note 1 (two pieces) | 7 uf 20%, 10v, Sel 4448 5818 | 4-7 uF 20%, 10%, \$a1  IN 6462 IN 5818 IN 5819 IN 6001IN 6004  NE 590 N  See note 1 see note 1 (two pieces)  ZTX 651 S  1 KOhm 5% | 59-26-1479 4-7 uf ZOX, 10V, Sal<br>50-04-0125 1M 4448<br>50-04-0512 1M 501d 1M 5819<br>50-04-0122 1M 4001 1M 4004<br>50-15-0102 ME 590 M<br>see note 1<br>see note 1<br>(two pieces)<br>50-03-0523 ZIX 651 S<br>57-11-4102 1 KOme 5% | C1 59-26-1479 4-7 uF 20% 10V, Sal  U1 50-04-0125 1M 4448 02 50-04-0512 1M 5018 1M 5819 03 50-04-0122 1M 40011M 4004  [C1 50-15-0102 ME 590 M  P1 |

Note 1 - connector. 16 contacts:

Studer Nr. 54.14.2002 Yamaich: Nr. FAP-16-08-4055 Burndy Nr. BPH 9 B 16 BO GS

MANUFACTURER: Fc=Feirchild. Fe=Ferranti. ITI=ITI Intermetall. Rot=Rotorola- Ph=Philips. Ri=Rifa. Sig=Sigmotics. Tf=Telefunken.

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5 T U O E A [00] 85/07/29 FB TIME COUNTER CONTROL BOARD 1.820.861.00 PAGE 1

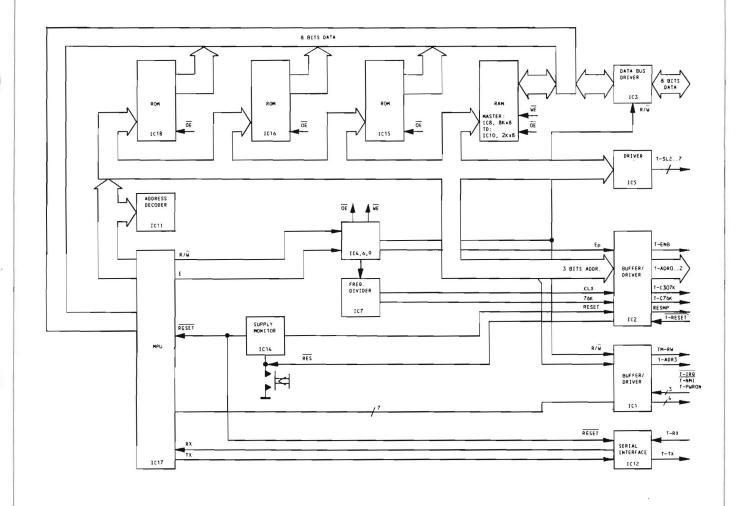
STUDER A820

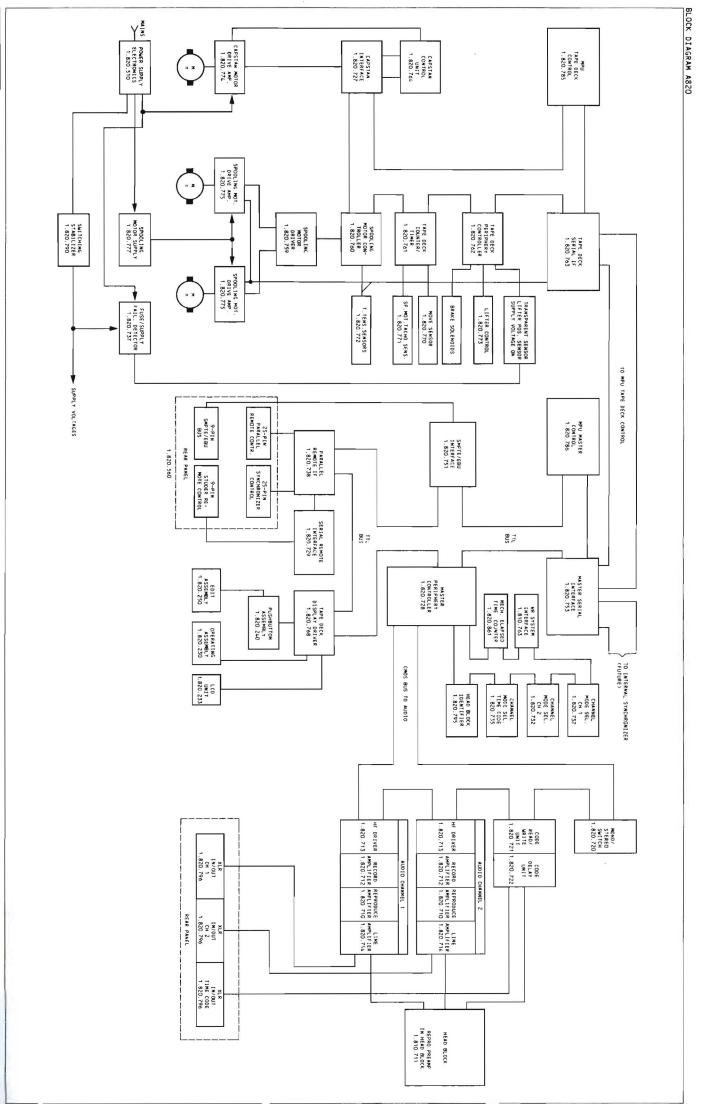
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| 1.820.710.82                 | REPRODUCE AMPLIFIER PCB "ESE"   | 7/23           |
| 1.820.710.83                 | REPRODUCE AMPLIFIER PCB "ESE"   | 7/25           |
| 1.820.712.81                 | RECORD AMPLIFIER PCB "ESE"  | 7/13           |
| 1.820.713.00                 | HF DRIVER PCB "ESE"   | 7/15           |
| 1.820.714.83                 | LINE AMPLIFTER (WITH TRANSFORMERS) PCB "ESE"<br>LINE AMPLIFIER (TRANSFORMERLESS) PCB "ESE"  | 7/7<br>7/9     |
| 1.820.720.00                 | MONO/STEREO SWITCH PCB "ESE"  | 7/27           |
| 1 820 721 82                 | TIME CODE READ/WRITE HMIT "ESE"   | 7/31           |
| 1.820.721.83/.84             | TIME CODE READ/WRITE UNIT "ESE"   | 7/33           |
| 1.820.722.81                 | TIME CODE DELAY UNIT "ESE"  | 7/37           |
| 1.820.724.00                 | MONO/STEREO SWITCH WITH TEST GENERATOR "ESE"  | 7/29           |
| 1.820.727.00                 | CAPSTAN INTERFACE PCB "ESE"   | 5/119<br>6/11  |
| 1.820.729.20                 | MASTER PERIPHERY CONTROLLER PCB "ESE" SERIAL REMOTE INTERFACE PCB "ESE" (OPTION)  | 6/23           |
| 1.820.730.81                 | - YU-METER AMPLIFIER PCB "ESE" (PART OF 1.810.320)  | 7/41           |
| 1.820.731.00                 | - CALIBRATION PCB (PART OF 1.810.320)   | 7/43           |
| 1.820.732.00                 | - CHANNEL CONTROL PCB (PART OF 1.810.320/.335)  | 7/45           |
| 1.820.735.00                 | TC CHANNEL CONTROL PCB (PART OF 1.810.337)  | 7/47           |
| 1.820.737.00                 | FUSE/SUPPLY FAILURE DETECTOR PCB "ESE"  | 5/73<br>6/19   |
| 1.820.738.00<br>1.820.739.11 | PARALLEL REMOTE INTERFACE PCB "ESE" - FRONT PANEL PCB (PART OF 1.820.720/.724)  | 7/27           |
| 1.020.737.11                 | OR  | : 7/29         |
| 1.820.740.00                 | - ADAPTATION PCB (PART OF 1.820.712)  | 7/13           |
| 1.820.749.00                 | INTERFERENCE FILTER PCB   | 7/5            |
| 1.820.751.20                 | SMPTE/EBU INTERFACE PCB (OPTION)  | 6/15           |
| 1.820.753.00                 | MASTER SERIAL INTERFACE PCB "ESE"   | 6/7            |
| 1.820.759.81/.82             | SPOOLING MOTOR DRIVER PCB "ESE" SPOOLING MOTOR CONTROLLER PCB "ESE"   | 5/109<br>5/103 |
| 1.820.760.00<br>1.820.761.00 | TAPE DECK COUNTER/TIMER PCB "ESE"   | 5/95           |
| 1.820.762.00                 | TAPE DECK PERIPHERY CONTROLLER PCB "ESE"  | 5/85           |
| 1.820.763.81                 | TAPE DECK SERIAL INTERFACE PCB "ESE"  | 5/81           |
| 1.820.764.22                 | CAPSTAN CONTROL UNIT PCB "ESE"  | 5/117          |
| 1.820.765.00                 | - CUE SENSOR PCB (PART OF 1.820.250)  | 6/33           |
| 1.820.766.00                 | - TAPE DECK INDICATOR PCB (PART OF 1.820.240) PUSH BUTTON/DISPLAY PCB   | 6/31<br>6/35   |
| 1.820.767.00<br>1.820.768.81 | TAPE DECK DISPLAY DRIVER PCB "ESE"  | 6/27           |
| 1.820.769.00                 | - TAPE DECK PUSH BUTTON PCB (PART OF 1.820.240)   | 6/29           |
| 1.820.770.00                 | MOVE SENSOR PCB "ESE"   | 5/97           |
| 1.820.771.81                 | MOTOR TACHO PCB "ESE"   | 5/99           |
| 1.820.772.00                 | TAPE TENSION SENSOR PCB   | 5/105<br>5/91  |
|                              | TAPE LIFTER CONTROL PCB   | 5/123          |
| 1.820.774.22<br>1.820.775.81 | CAPSTAN MOTOR DRIVE AMPLIFIER PCB "ESE" SPOOLING MOTOR DRIVE AMPLIFIER PCB "ESE"  | 5/113          |
| 1.820.776.00                 | - SHITTLE CONTROL PCB (PART OF 1 820.250)   | 6/33           |
| 1.820.777.00                 | SPOOLING MOTOR SUPPLY PCB "ESE"   | 5/71           |
| 1.820.785.21                 | SPOOLING MOTOR SUPPLY PCB "ESE" MP UNIT TAPE DECK CONTROL "ESE"   | 5/77           |
| 1.820.786.21                 | MP UNIT MASTER "ESE"  | 6/3            |
| 1.820.790.00/.81             | SWITCHING STABILIZER PCB - STABILIZER/LIMITER PCB (PART OF 1.820.790)   | 5/67<br>5/67   |
| 1.820.792.00<br>1.820.793.81 | OPTO SENSOR PCB   | 5/87           |
| 1.820.794.00                 | DISTRIBUTION PCB  | 7/39           |
| 1.820.795.00                 | HEAD ASSEMBLY IDENTIFIER PCB  | 7/49           |
| 1.820.796.00                 | - SOURCE SELECTOR PCB (PART OF 1.820.235/.580)  | 7/51           |
| 1.820.797.00/.81             | - LC DISPLAY CONNECTOR PCB (PART OF 1.820.233) - MONITOR AMPLIFIER PCB "ESE" (PART OF 1.820.235/.580)                                     | 6/37<br>7/51   |
| 1.820.860.00<br>1.820.861.00 | TIME COUNTER CONTROL PEB (OPTION)   | 5/131          |
| 1.820.862.00                 | - LINE OUTPUT AMPLIFIER PCB "ESE" (PART OF 1.820.715)   | 7/9            |
|                              |   | ~              |
|                              |   |                |

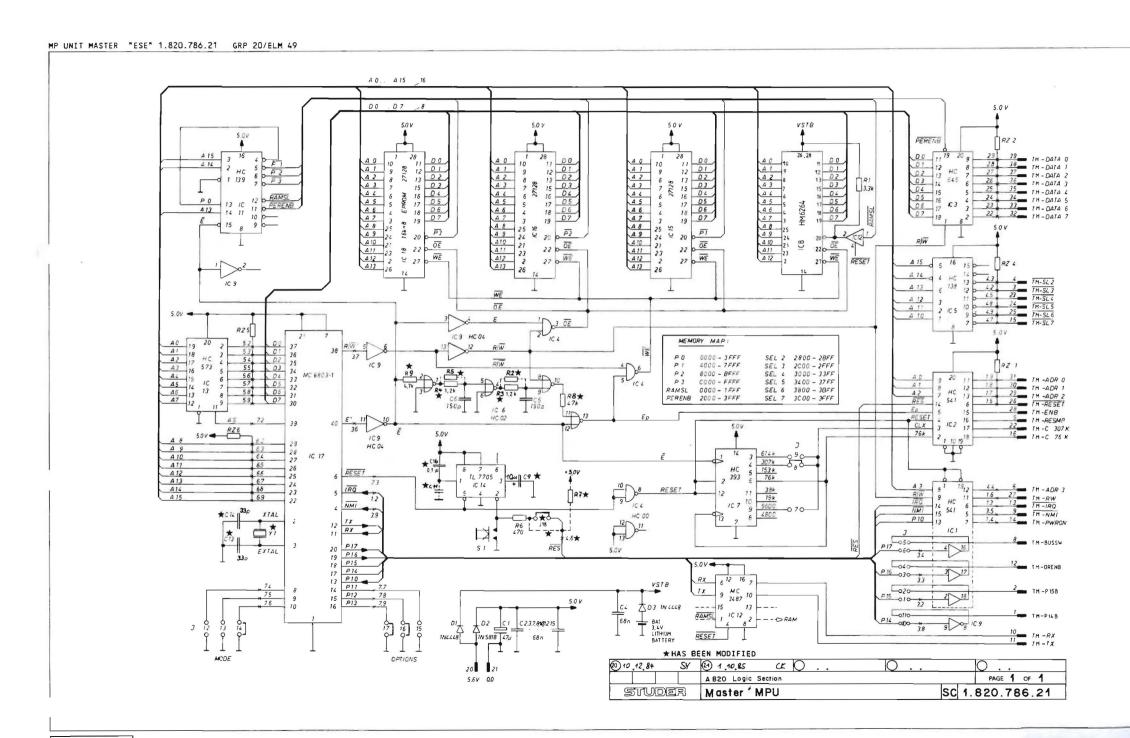
BLOCK DIAGRAM MP UNIT MASTER "ESE" 1.820.786



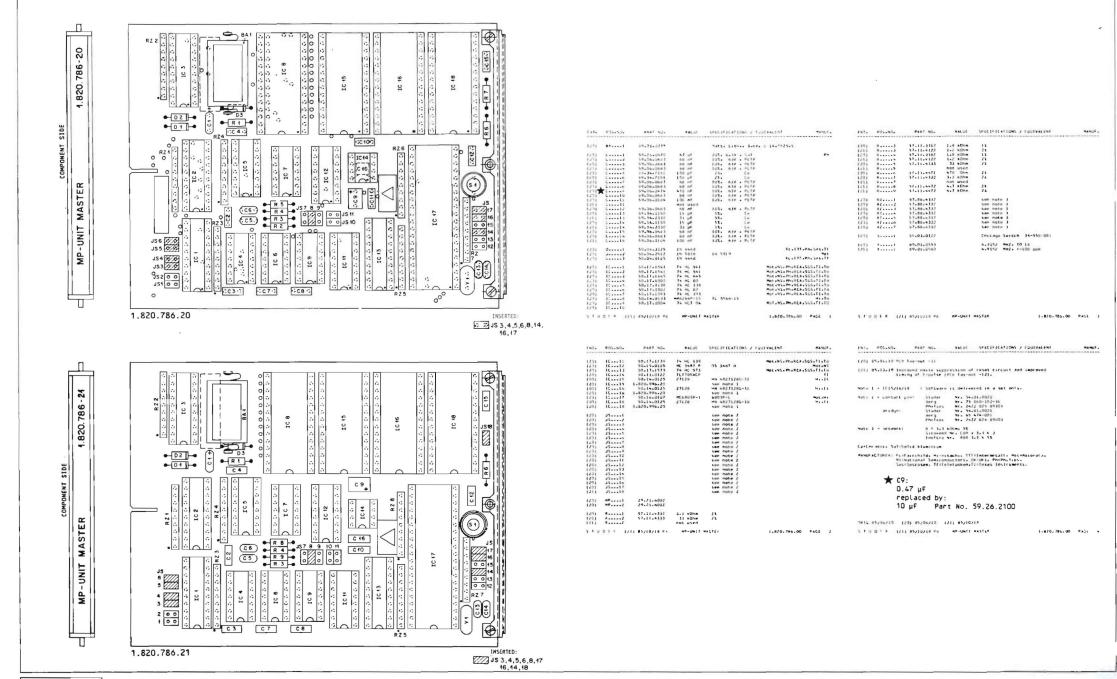


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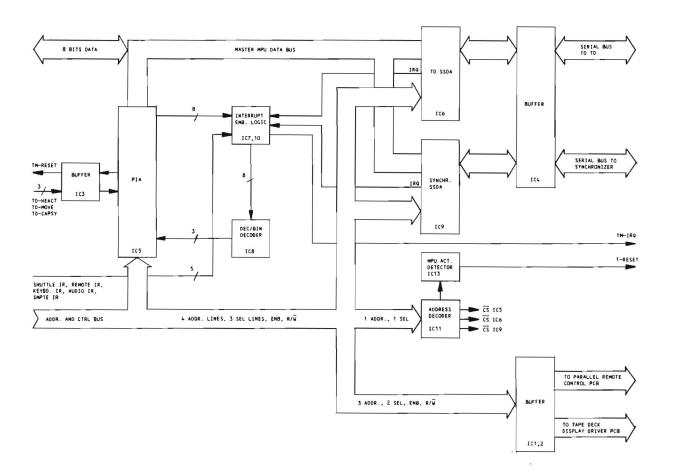
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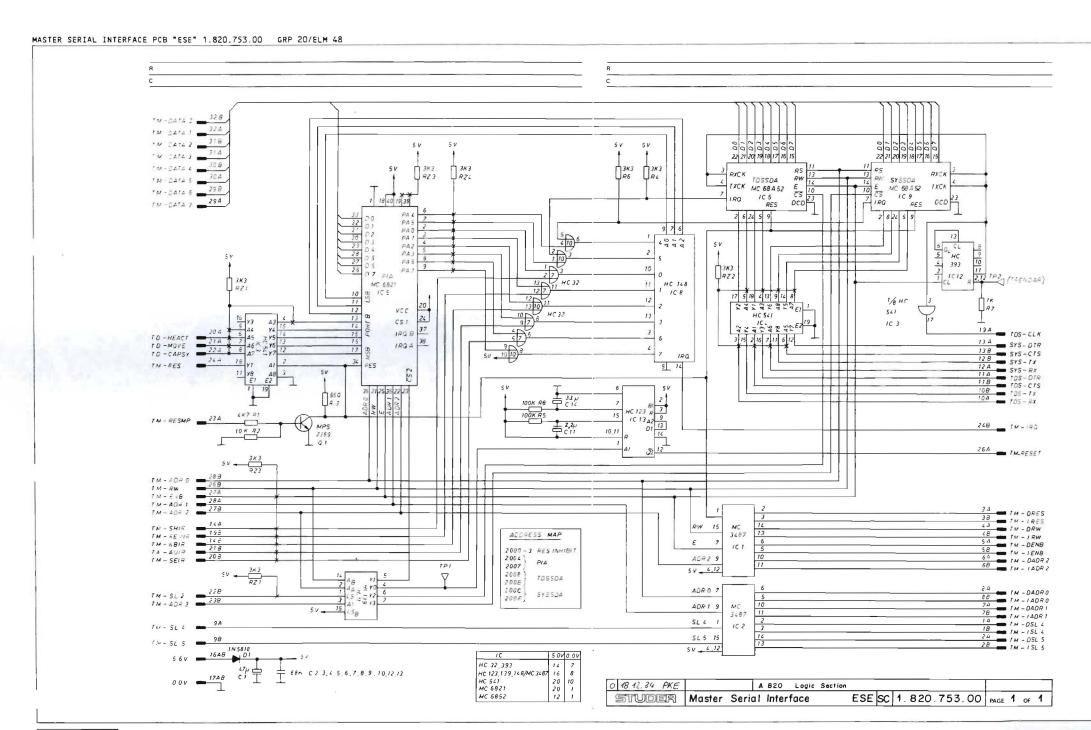


MP UNIT MASTER "ESE" 1.820.786.20/.21 GRP 20/ELM 49



BLOCK DIAGRAM MASTER SERIAL INTERFACE PCB "ESE" 1.820.753





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MASTER SERIAL INTERFACE

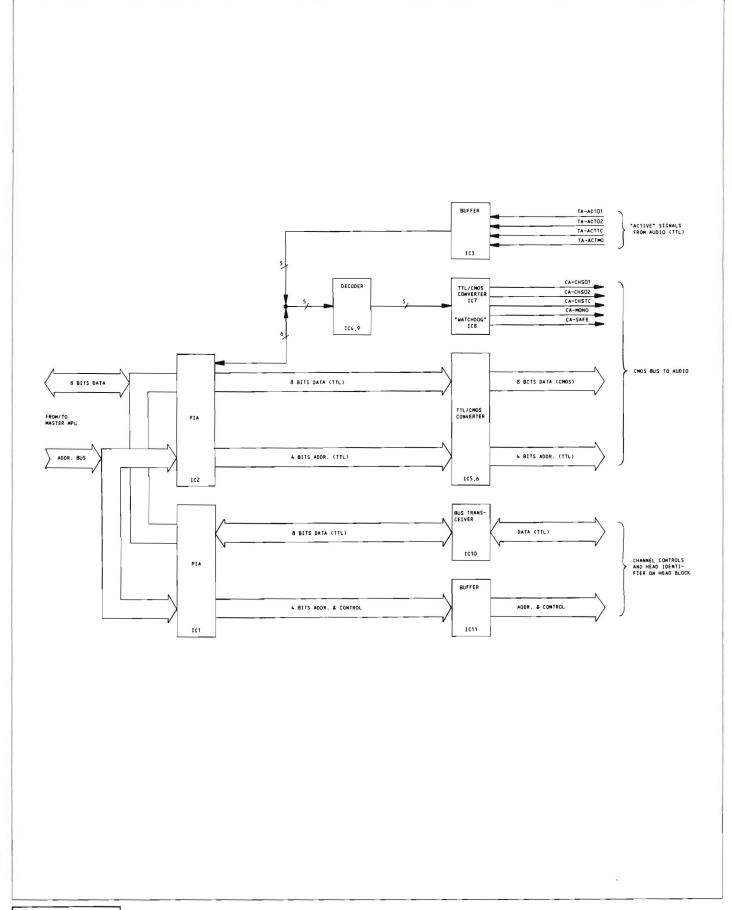
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BLOCK DIAGRAM MASTER PERIPHERY CONTROLLER PCB "ESE" 1.820.728



MASTER PERIPHERY CONTROLLER PCB "ESE" 1.820.728.00/.81 GRP 20/ELM 51 3,5,79 IC 3 HC540 12 A0 14 B0 7B TA-ACTO1
9B TA-ACTO2
8B TA-ACTIC
6B TA-ACTMO VCC: IC11, PIN: 3, 5, 7 / GND: IC4 PIN: 7 5,0 IC4, 14 IC11 1 A1 8 1,19 +5,0 IC4, 14 B16 16 CO C14 79 20 10 +5,0 A+15,0 DI PI 13 1N5818 C 2,3,46,7:68nF IC4 +5,0 3 AI HC10 128\_\_\_\_CA-CHS01 5 BI C1 47µF B0 4 C0 5 D0 10 148 CA-CHS02 118 CA-CHSTC 138 CA-MONO C2\_ C3\_\_ C4\_\_\_ C6\_ C7 + 15,0 - 15AB C9 C9 47µF 9 01 10 +5,0 + 5,0 10 T11 IC8 114 18 2 HC123 RZ5 10K 5,0 +5,0 +5,0 +5,0\_16 22 CS0 PA 0 2 15 15 RC R2 10K IC9 +5,0 \*RI 1M VCC HC74 12 20B 04 CA-SAFE PA13 PA24 TM-ADR2 \_\_\_22A 24 CS1 2 D PR IC7 4504 TM-SEL 6. 14A
TM-ENB 21A 23 CS2 14 14 CLR Ξc8 47μ CA239 25 E IC 9 HC 74 +5,0 1 13 IC5 3 AI AO 2 4504 21 RW RZ5 10K CB2 19 11,13 12 IM-ADR1 \_\_\_\_23A 36 RS0 218 CA-ADR-R 35 RS1 34 RES TM-ADRO 244 B0 4 C0 5 D0 10 E0 12 5 BI 7 CI 22B CA-ADR-S 23B CA-ADR-I PA4 6 TM-DATA 0 \_\_\_\_32A 33 00 9 01 24B\_\_\_CA-ADR-U IM-DATA 1 31A IM-DATA 2 30A 32 D1 31 D2 P46 8 11 EI E0 12 14 FI FO 15 25B CA-DATA 0 26B CA-DATA 1 PA7 9 TM-DATA 3 29A 30 03 PRO 10 16 →15,0 TM-DATA4 \_\_\_28A PB1 11 8 RZ6 IM-DATA5 \_\_\_\_27A 28 D5 + 5,0 -PB2 12 PB3 13 16 1 13 AI AO 2 TM-DATA 6 27 D6 TM-DATA7 25A 3 A1 + 5,0 18 CB1 PB414 28B CA-DATA 3 29B CA-DATA 4 30B CA-DATA 5 5 BI B0 4 PB 5 15 C 0 6 F 0 15 PB6 16 IC2 PR7 17 31B CA-DATA 6 32B CA-DATA 7 11 E1 E0 12 9 DI DO10 MC68A21P VSS D0 10 +5,0 8 +5,0 IOK RZ1 10K RZ 2 20 IC11 +5,0 22 C\$0 PA0 2 PA1 3 L S541 6 A5 10K Y5 14 Y 3 16 Y 1 18 Y 7 12 Y8 11 1A - 7-SADC 1B - 7-SADB 2A - 7-SADA 3A - 7-WRTSL 21 RW 4 A3 2 A1 25 F PA2 4 34 RES 23 CS2 8 A7 9 A8 CB2 19 + 5,0 1STO +5,0 35 RS1 P435 +5,0 36 RS0 24 CS1 PA4 6 PA5 Z 10K RZ4 10K RZ3 1010 10K RZ3 33 00 P468 LS245 1 DIR 38\_\_\_\_\_1-D1-CH1 4A\_\_\_\_\_1-D1-CH2 19 G 31 02 PA7 9 B2 17 **3**0 D3 PB0 10 2 A1 B3 16 B4 15 4B\_\_\_T-DT-CH3 4B 7-01-CH3
5A 1-01-MP
5B 1-01-RP1
6A 1-01-RP2
ZA 1-07-SIM 29 D4 PB1 11 28 05 4 A3 PB 2 12 B5 14 27 D6 26 D7 PB3 13 PB4 14 5 A4 6 A5 7 A6 B6 13 B7 12 PB5 15 18 B8 11 8A\_T-DT-RES PB6 16. PB7 12 8 A7 + 5,0 IC1 RZ 2 + 5,0 MC68A21P 10 \* HAS BEEN MODIFIED FOR 1.820.728.00,  $R1 = 220 k\Omega$ <u>23.11.84</u> SU PAGE 1 OF 1 A 8 2 0 Logic Section

Periphery Controller

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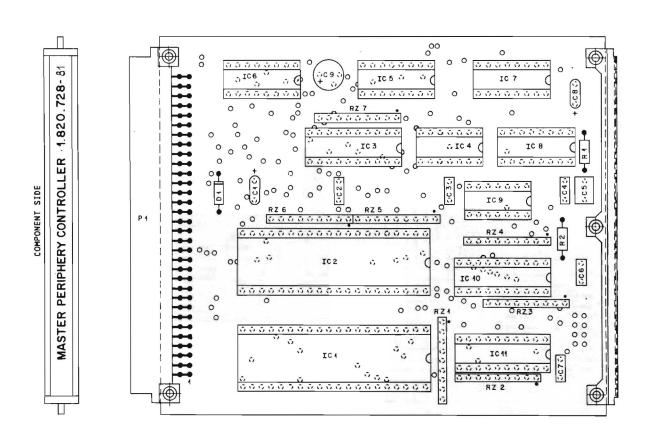
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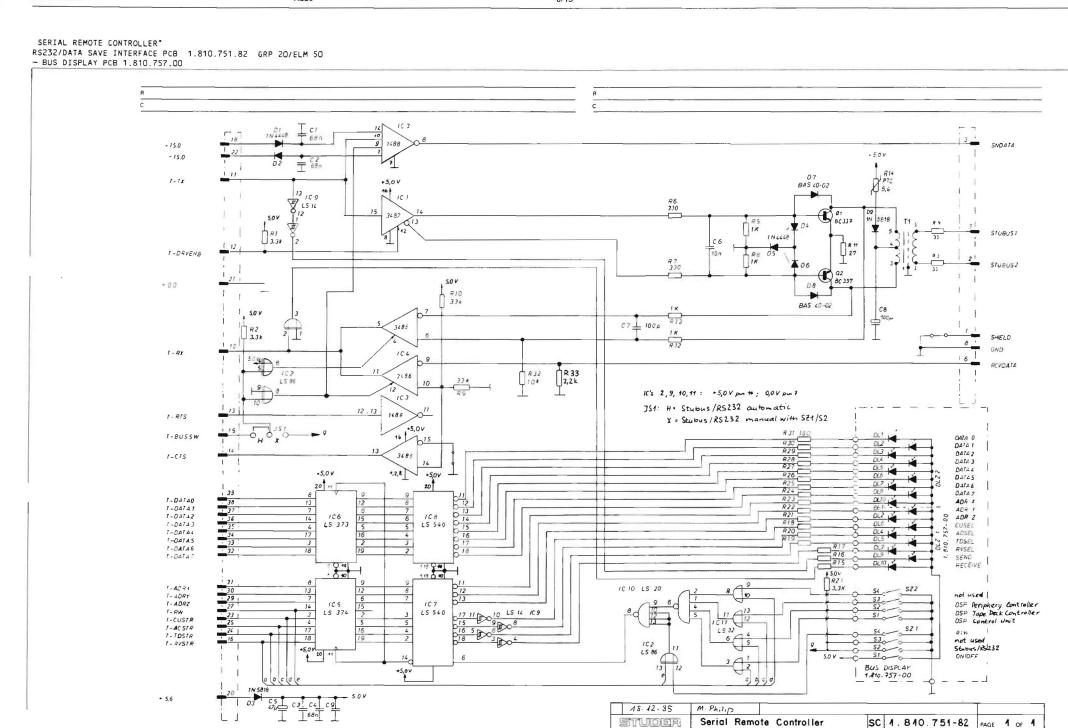
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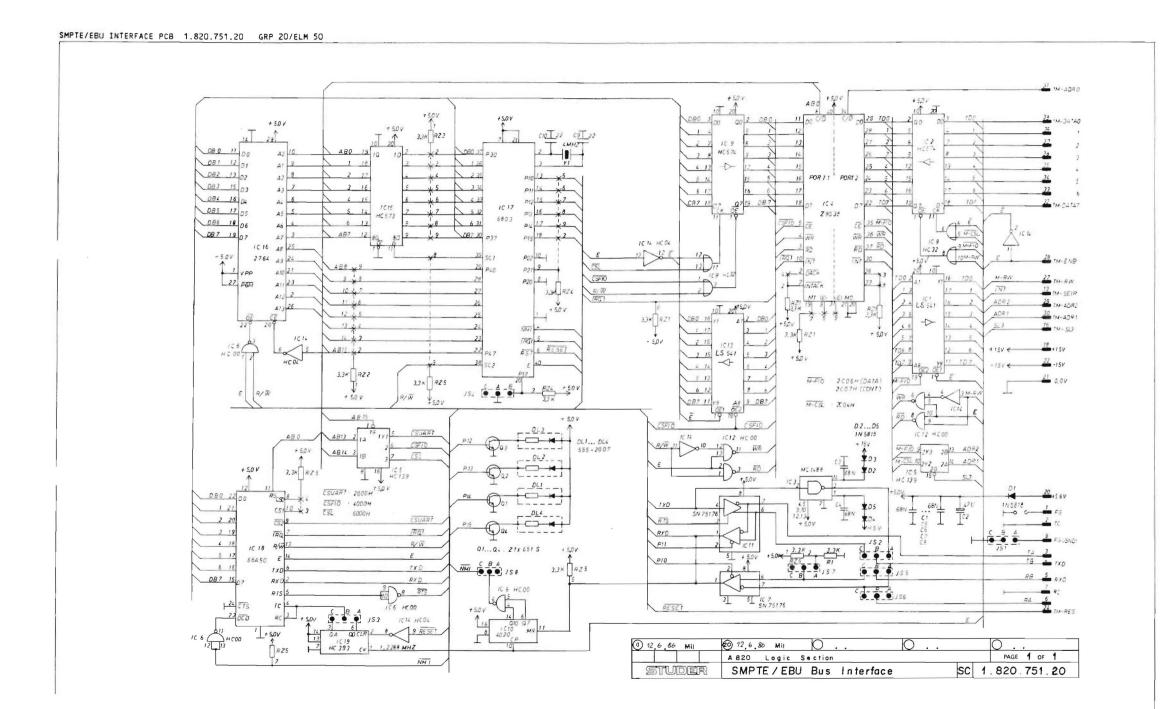
MASTER PERIPHERY CONTROLLER PCB "ESE" 1.820.728.00/.81 GRP 20/ELM 51



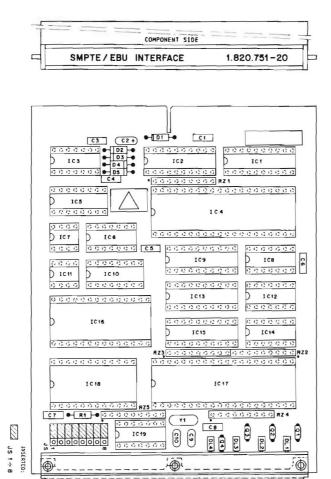
| 18  | LENT MANUF.            | CATIONS / EQ  | SPECIF   | VALUE       | PART NO.    | POS.NO.   | IND.     |
|-----|------------------------|---------------|----------|-------------|-------------|-----------|----------|
| No  | Ph                     | 6-3V- Sal     | -20%.    | 47 uf       | 59.26.0470  | C1        |          |
| 740 |                        | 63V, PETP     | 101.     | 68 nF       | 59.06.0683  | C Z       |          |
|     |                        | 63V. PETP     | 10%.     | 68 nF       | 59.06.0681  | C 3       |          |
|     |                        | 63V. PETP     | 10%.     | 68 nF       | 59.06.0683  | C4        |          |
|     |                        | 63V. PETP     | 102.     | 470 nF      | 59-06-0474  | C 5       |          |
| 13  |                        | 63V. PETP     | 10%.     | 68 nF       | 59.06.0683  | C         |          |
|     |                        | 63V. PETP     | 101.     | 68 OF       | 59.06.0683  | C7        |          |
|     | Ph                     | 162 .VE. 6    | -201.    | 47 uf       | 59-26-0470  | C 8       |          |
| MA  |                        | 25V. E1       | -20%     | 47 uf       | 59.22.5470  | C9        |          |
|     | Mot                    | 819           | 1 N      | 1 N 5818    | 50-04-0512  | 01        |          |
|     | AMI .Fc .Mat           | 21P. F68 A 21 | 568 A    | MC68 A 21P  | 50.16.0106  | 101       |          |
|     | AMI.Fc.Mot             | 21P. F68 A 21 | 568 A    | MC 68 A 21P | 50.16.0106  | 102       |          |
|     | L.NS. Ph.RCA.SGS.TI.To |               |          | 74 HC 540   | 50-17-1540  | 103       |          |
| -4  | L.NS. PO.RCA.SGS.TI.TO |               |          | 74 HC 10    | 50-17-1010  | 104       |          |
|     | Mot                    |               |          | MC145048CP  | 50-15-0103  | 165       |          |
|     | Mot                    |               |          | MC 14504BCP | 50-15-0103  | 106       |          |
|     | Mgt                    |               |          | MC145048CP  | 50-15-0103  | 10 7      |          |
|     | t.NS.Ph.RCA.SGS.TI.TO  |               |          | 74 HC 123   | 50-17-1123  | 10 8      |          |
|     | L.NS. PO.RCA.SGS.TI.TO |               |          | 74 HC 74    | 50-17-1074  | 10 9      |          |
|     | TI.                    |               |          | SN7415245N  | 50-06-0245  | 10 10     |          |
|     | FC. HOL.TI             | 1 PC          | 7 4L 554 | SN74L5541N  | 50-06-0541  | 1011      |          |
|     |                        | 1 .           | see no   |             | 54-11-2004  | P 1       |          |
|     |                        |               | 2%       | 1 MOhm      | 57-11-4105  | R1        | <b>×</b> |
|     |                        |               | 2%       | 10 kDfm     | 57-11-4103  | R 2       |          |
|     | d part 1.010.014.57)   | 8 = 10 kOhe   | Network  |             | 57.88-4103  | RZ1       |          |
|     | part 1-010-014-571     | 8 . 10 kGhm   | Network  |             | 57.B8-4103  | R2 2      |          |
|     | d part 1.010.014.571   | 8 . 10 kOhm   | Network  |             | 57.88.4103  | R2 3      |          |
|     | d part 1-010-014-571   | 8 9 10 kghe   | Network  |             | 57.88.4103  | RZ4       |          |
|     | part 1.010.014.57)     | 8 ¢ 10 k0he   | Network  |             | 57.8B-4103  | RZ5       |          |
|     | part 1-010-014-57)     | 8 0 LO kOhm   | Network  |             | 57.88.4103  | RZ        |          |
|     |                        | 8 . 3.3 kOh   |          |             | 57-88-4332  | RZ7       |          |
| OR: |                        |               |          |             |             |           |          |
| 5   | .820. 728.81 PAGE 1    | CONTROLLER    | RIPHERY  | MASTER P    | 86/03/25 PB | 0 E R (00 | s r u    |

| Note 1 - 0 | В          | 2032 Euro Print<br>arndy Nr. PI 64<br>rni Nr. 9722.5               | 8 20 POO  | F0 0 Z0  |             |                      |      |
|------------|------------|--|-----------|----------|-------------|----------------------|------|
| El*Electro | olytic, Pi | TP=Metallized P  | olyesterf | ilm, Sal | =Solid Alum | intum                |      |
| MANUFACTUR | RCA=       | American Microsy<br>Motorola: MS=Nat<br>ICA Corporations<br>Shiba: | ional Ses | iconduct | ors, Phaphi |                      |      |
| ≯ FOR      | 1.820      | 0.728. <u>00</u> ,   | R1 =      | 220      | kΩ          |                      |      |
|            |            |  |           |          |             |                      |      |
|            |            |  |           |          |             |                      |      |
|            |            |  |           |          |             |                      |      |
| ORIG 86/03 | /25        |  |           |          |             |                      |      |
| STUDE      | 8 1001     | 86/03/25 PB  | MASTED D  |          | CONTROLLER  | 1 - 62 0 - 72 8 - 81 | PAGE |









SMPTE/EBU INTERFACE PCB 1.820.751.20

GRP 20/ELM 50

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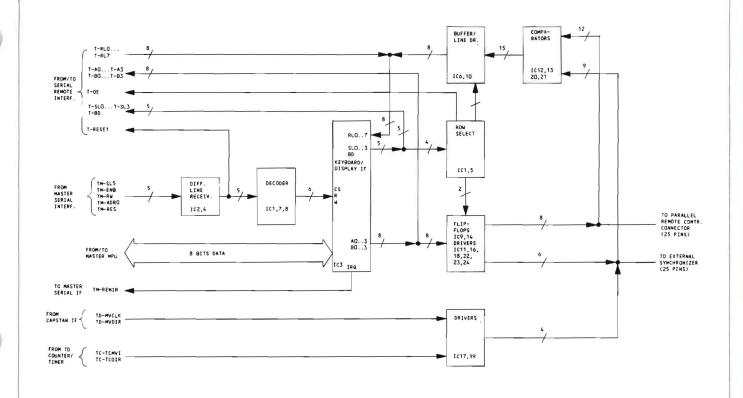
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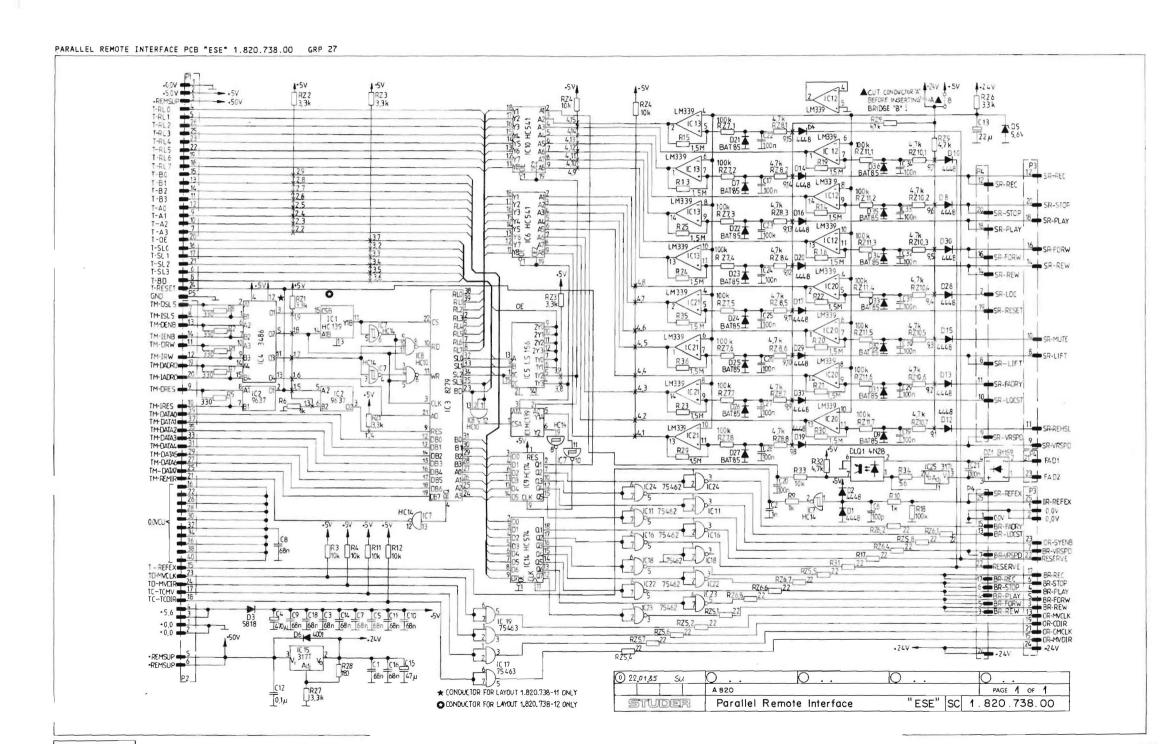
\$ 55555 5 5555 5555555 35555 [5 804. VO. 1 3333 7. A. 200 7-1 MALUI SOT A SET OF THE PROPERTY OF T VE mote 2 ::::

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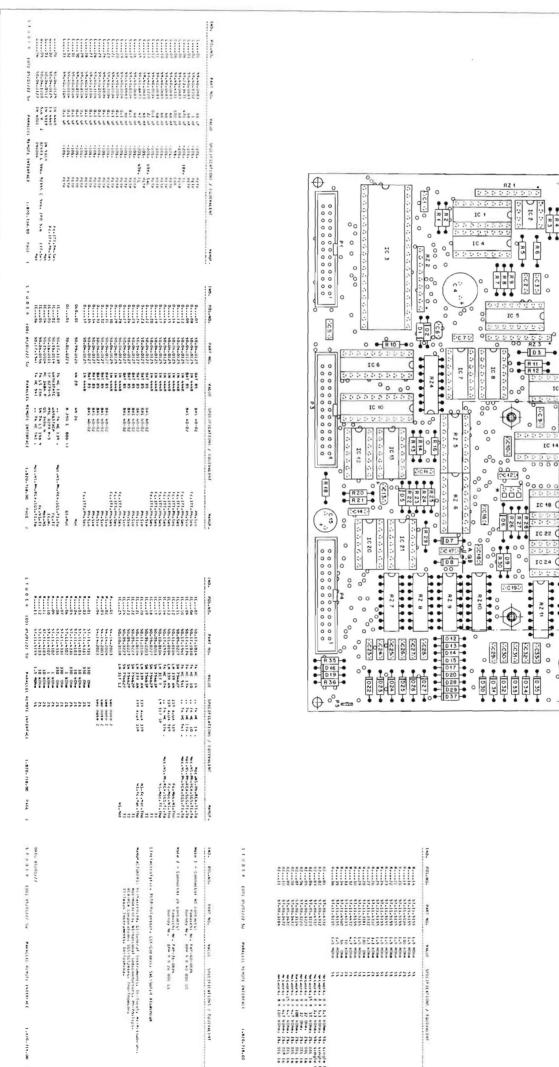
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BLOCK DIAGRAM PARALLEL REMOTE INTERFACE PCB "ESE" 1.820.738





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PARALLEL REMOTE INTERFACE PCB "ESE" 1.820,738,00 GRP 27

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RZ

RZ 11 (C33)

R 33 R 34

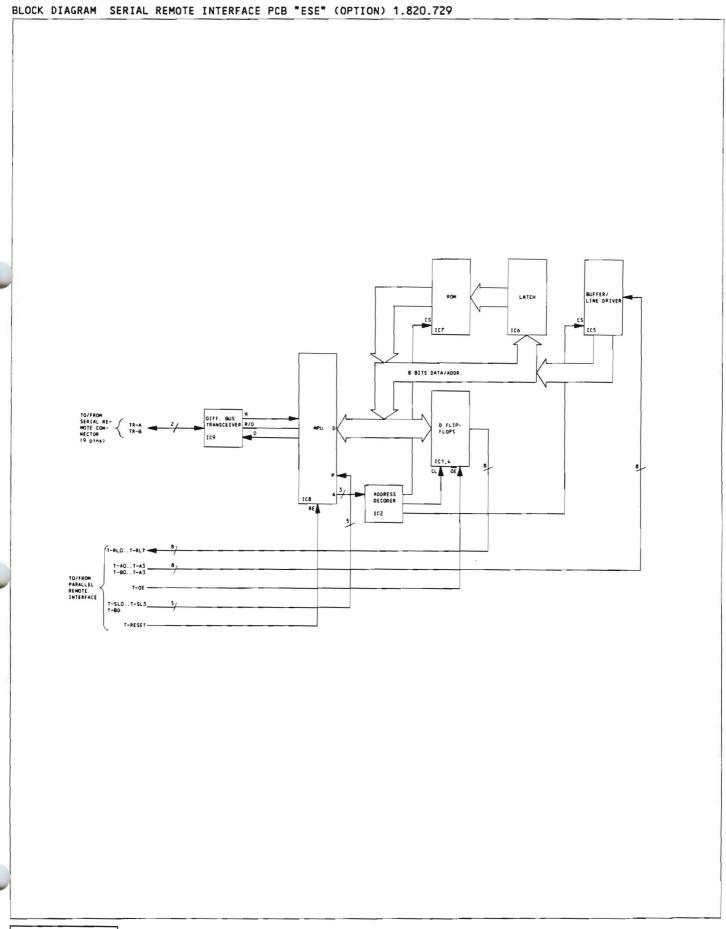
- C21:

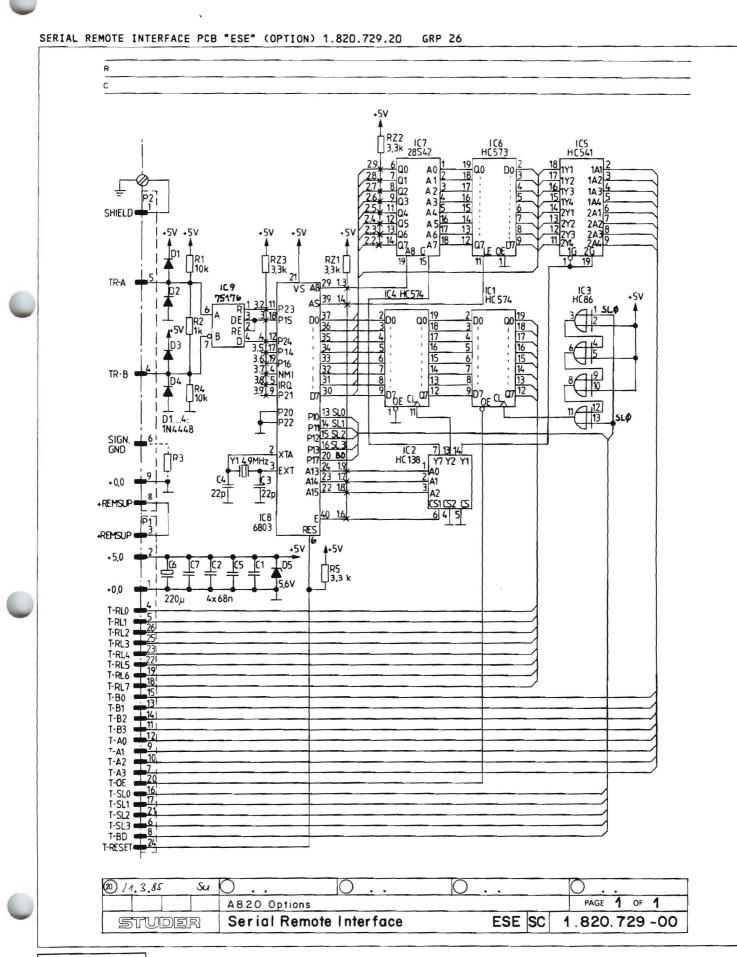
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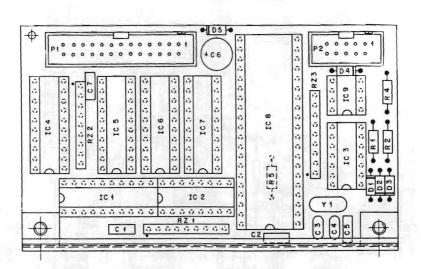
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SERIAL REMOTE INTERFACE PCB "ESE" (OPTION) 1.820.729.20 GRP 26

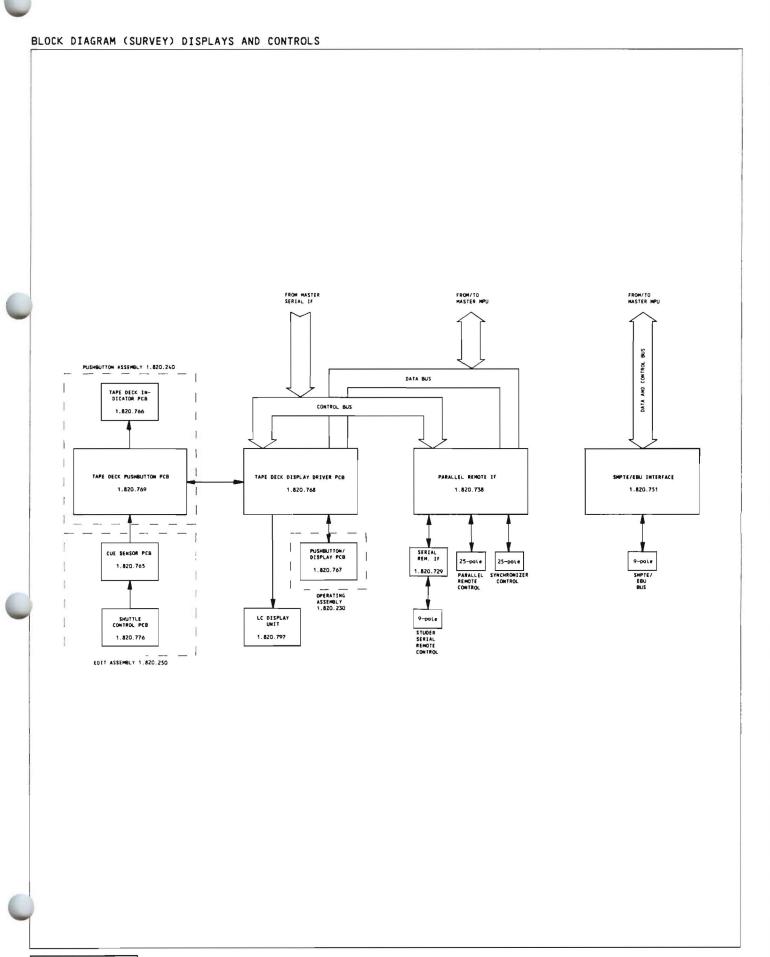


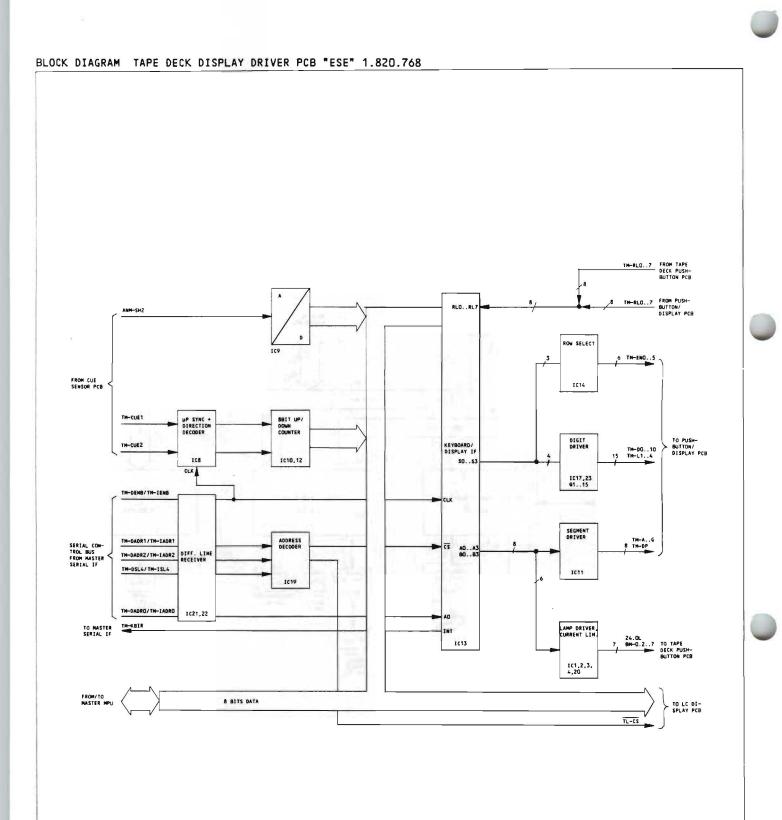
| MANUF             | FOULVALENT       | ICATIONS / FO | SPECIFI | VALUE      | PART NO.     | POS.NO. | IND. |
|-------------------|------------------|---------------|---------|------------|--------------|---------|------|
|                   |                  | PETP          | 103.    | 68nF       | 59.40.0683   | C       | (20) |
|                   |                  | PETP          | 103.    | 68nF       | 59-40-0683   | C       | 20)  |
|                   |                  | CER           | 53.     | 22pF       | 59-45-2220   | C 3     | 105  |
|                   |                  | CER           | 52.     | 22pF       | 59.45.2220   | C       | 20)  |
|                   |                  | PETP          | 103.    | 68nF       | 59.40.0683   | C 5     | 201  |
|                   |                  | 10V EL        | 203.    | ZZOUF      | 59.22.3221   | C       | 20)  |
|                   |                  | PETP          | 101.    | 68nF       | 59.40.0683   | C 7     | 20)  |
| Fc. ITT. Ses.Ph   | Fc               |               |         | 184448     | 50-04-0125   | 01      | 201  |
| Fc. ITT. Ses.Ph   | FC               |               |         | 184448     | 50-04-0125   | 02      | 201  |
| Fc. ITT. Sas.Ph   |                  |               |         | 1N4448     | 50.04.0125   | 0 3     | 20)  |
| Fc. ITT. Ses.Ph   |                  |               |         | 184448     | 50.04.0125   | 0       | 20)  |
| 5.6 ITT.Ses       | 55 C 5V6+ 2P05+6 | C 5V6. BZX55  | BZX83   | 5-6V Z     | 50-04-1108   | 0 5     | 20)  |
| t.NS .REA. TO. TI | Ph.Mot.N         | HC 574        |         | 74HC 574   | 50-17-1574   | 16 1    | 20)  |
| .Ph.RCA.SGS.TI    | Mot . NS . Ph    | HC 138        |         | 74HC 138   | 50-17-1138   | 16 2    | 201  |
| . Ph. RCA. SGS.TI | Mot . MS . Ph    | HC B6         |         | 74HL 86    | 50-17-1086   | 10 3    | 20)  |
| L.MS.RCA.TO.TI    | Ph. Mot . N      | HC 574        |         | 74HC 574   | 50-17-1574   | 10      | 20)  |
| L.MS.RCA.TO.TI    | Ph. Mot . N      | HC 541        |         | 74HC 541   | 50-17-1541   | 16 5    | 20)  |
| .RCA.TO. TI.SGS   | Ph.Hot .RC       | HC 573        | 74      | 74HC 573   | 50-17-1573   | 16 6    | 201  |
| 11                |                  |               |         | TBP28542N  | 50.14.0120   | 107     | 00)  |
| St                |                  | ere 13/85     |         |            | 1.820.999.20 | 16 7    | 20)  |
| Hot .HI           |                  |               | HD 680  | MC6803 P-1 | 50-16-0107   | IC B    | 20)  |
| TI.MS             |                  | 95 N          | 05 364  | SN75176 AP | 50-15-0115   | 109     | 101  |
|                   |                  |               | 500 no  |            | 54.14.2003   | P 1     | 201  |
|                   |                  | ote 2         | see no  |            | 54-14-2001   | P 2     | 201  |
|                   |                  |               | 22      | 10 kOhm    | 57-11-4103   | R1      | 20)  |
|                   |                  |               | 22      | i kOhm     | 57-11-4102   | Raccaz  | 20)  |
|                   |                  |               | 22      | 10 kQhm    | 57-11-4103   | R       | (20) |
|                   |                  |               | 5.2     | 3-3kOhm    | 57-11-4332   | R 5     | 201  |
|                   | kOhm. 51. singl  |               |         | 803.3kOhm  | 57.88.4332   | RZ1     | 201  |
|                   | kOne, 5%, singl  |               |         | 803.3kOhm  | 57-88-4332   | RZ Z    | 20)  |
| oale line         | koha, 51, singl  | k. 8 0 3.3 h  | Hetwor  | 803.3kOhm  | 57.88.4332   | RZ 3    | 201  |

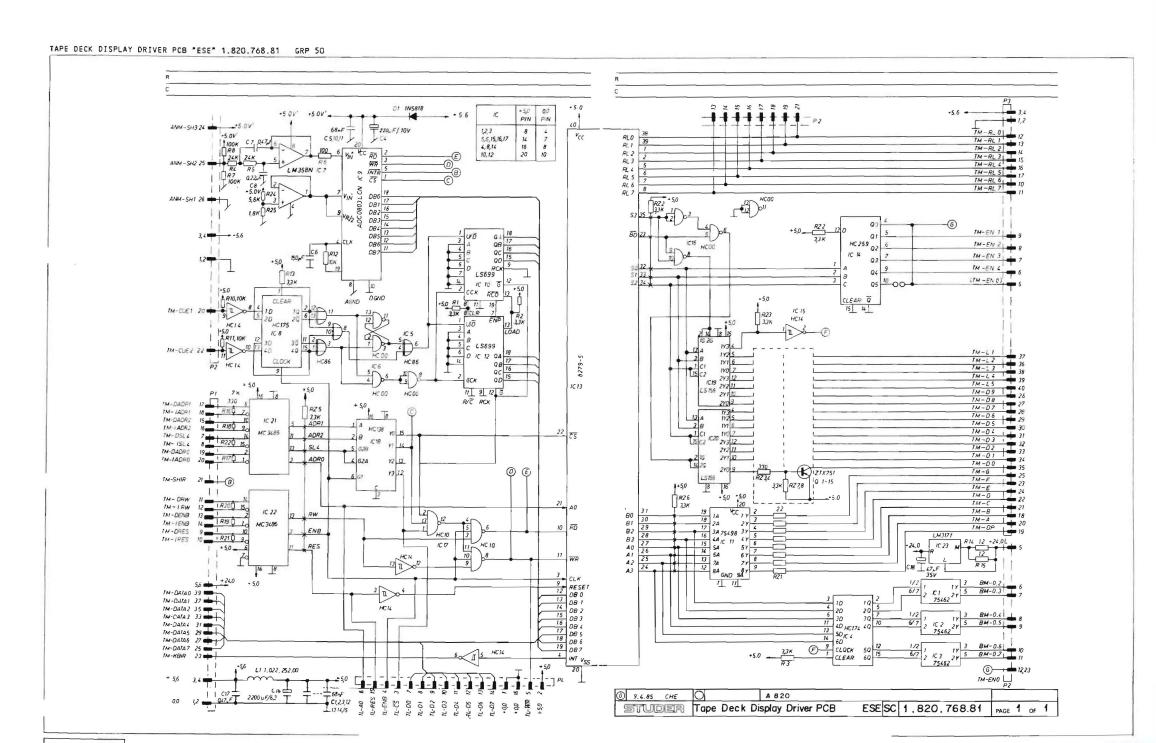
INO. POS.NG. PART NO. VALUE SPECIFICATIONS / EQUIVALENT

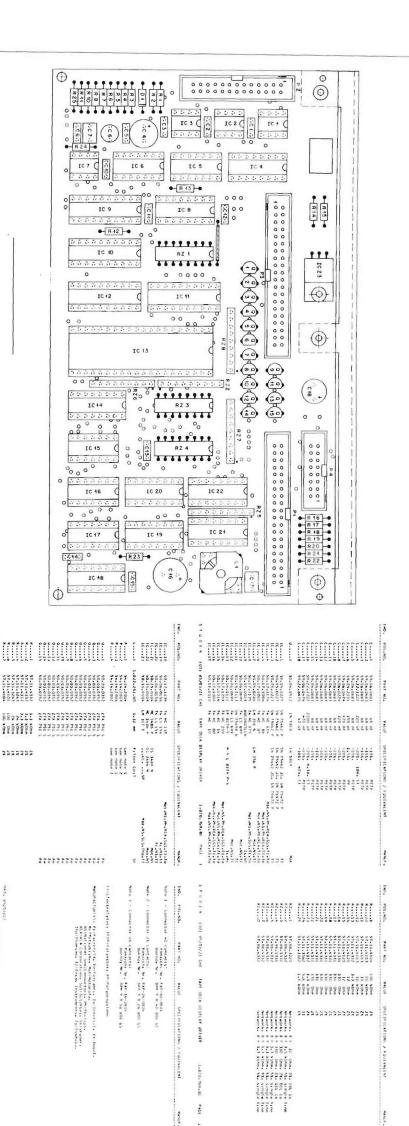
El=Electrolytic. PETP=Polyester. CER=Ceramic. SAL=Solid Aluminium

ORIG 85/03/21 (20) 85/03/21 5 T U O E R (20) 85/03/21 SU SERIAL REMOTE INTERFACE 1.820-729-00 PAGE 2







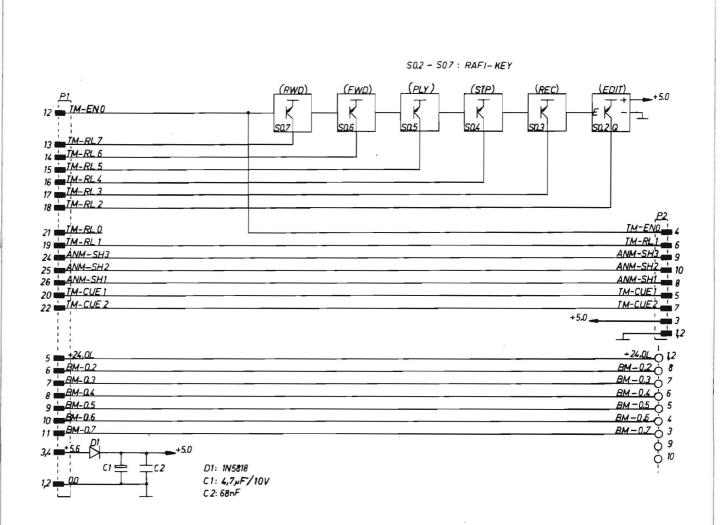


222222

TAPE DECK DISPLAY DRIVER PCB "ESE" 1.820.768.81 GRP 50

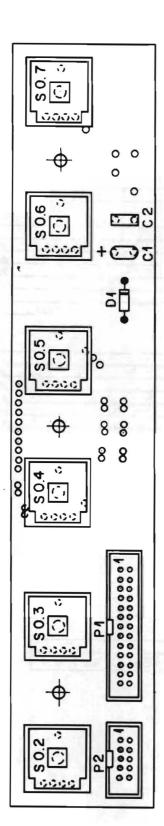
6/28

PUSH BUTTON ASSEMBLY 1.820.240.00 GRP 48 - TAPE DECK PUSH BUTTON PCB 1.820.769.00



| 23.11.84 SU |  |        |      |
|-------------|--|--------|------|
| STUDER      | Tape Deck Push Button PCB SC1.820.769.00 | PAGE 1 | of 1 |

PUSH BUTTON ASSEMBLY 1.820.240.00 GRP 48 - TAPE DECK PUSH BUTTON PCB 1.820.769.00



|             | *.*              | -201. 10V .   | 4-7 UF   | 59-26-1479 | C1     |  |
|-------------|------------------|---------------|----------|------------|--------|--|
|             |                  | -101. 63V .   | 68 nF    | 59-06-0683 | C 2    |  |
| H           |                  | 1 4 5819      | 1 N 5818 | 50-04-0512 | 01     |  |
|             |                  | see note 1    |          | 54-14-2003 | P      |  |
|             |                  | see note 2    |          | 54-14-2001 | 92     |  |
| 3-13001-110 | switch, RAFI nr. | Pushbutton si |          | 55-03-0261 | 50-2   |  |
|             | switch. RAF! nr. |               |          | 55.03.0261 | 5 0-3  |  |
| 3.13001.110 | switch. RAFI nr. | Pushbutton se |          | 55-03-0261 | 50-4   |  |
| 3.13001.110 | switch. RAFI nr. | Pushbutton s  |          | 55.03.0261 | S U.5  |  |
| 3-13001-110 | Switch. RAFI nr. | Pushbutton si |          | 55.03.0261 | 5 0-6  |  |
| 3-13001-110 | Switch. RAFI nr. | Pushbutton se |          | 55.03.0261 | \$ 0.7 |  |
|             |                  |               |          |            |        |  |
|             |                  |               |          |            |        |  |
|             |                  |               |          |            |        |  |
|             |                  |               |          |            |        |  |

Note 1 - connector 26 contacts: Yamaschi nr. FAP-26-0824Burndy nr. BPH 9 B 26 B00 GS

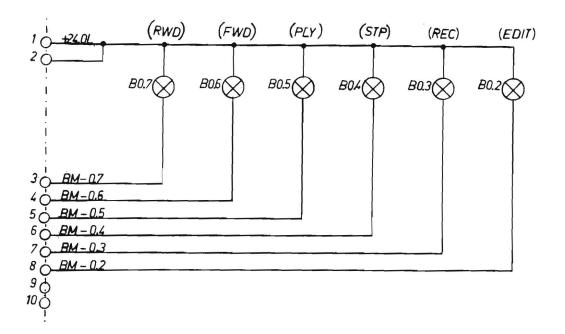
Note 2 - connector 10 contacts: Yamaschi nr. FAP-10-0824Burndy nr. BPH 7 5 10 B00 GS

Sel\*Solid Aluminium, PETP\*Metallized Polymsterfilm

MANUFACTURER: Mot\*Motorola, PhrPhilips

ORIG 84/11/23
5 T U 0 E R (00) 64/11/23 CHC TAPE DECK PUSHBUTTON BUARD L.820.769.00 PAGE 1

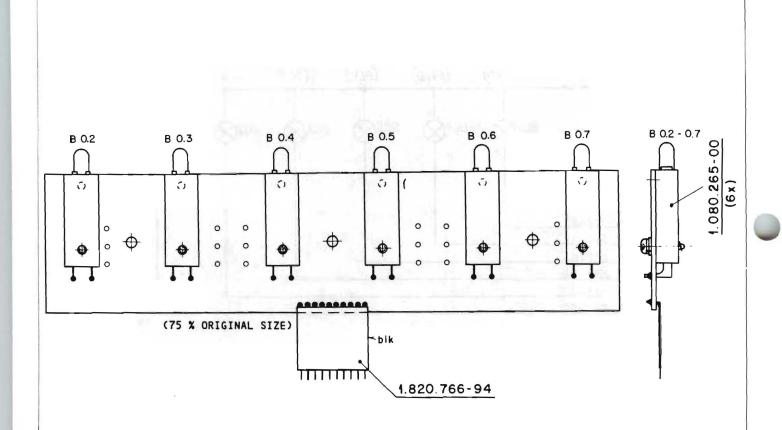
PUSH BUTTON ASSEMBLY 1.820.240.00 GRP 48 - TAPE DECK INDICATOR PCB 1.820.766.00



B0.2 - B0.7: 24V / 0.04A 75.5 XB0.2 - XB0.7: LAMP HOLDER

| 23.11.84 R.SUTER |      |      | 4 820 Comr | nand Se | ction | ļ    |        |        |      |  |
|------------------|------|------|------------|---------|-------|------|--------|--------|------|--|
| STUDER           | Tape | Deck | Indicator  | PCB S   | 301   | .820 | 766.00 | PAGE 1 | OF 1 |  |

PUSH BUTTON ASSEMBLY 1.820.240.00 GRP 48 - TAPE DECK INDICATOR PCB 1.820.766.00

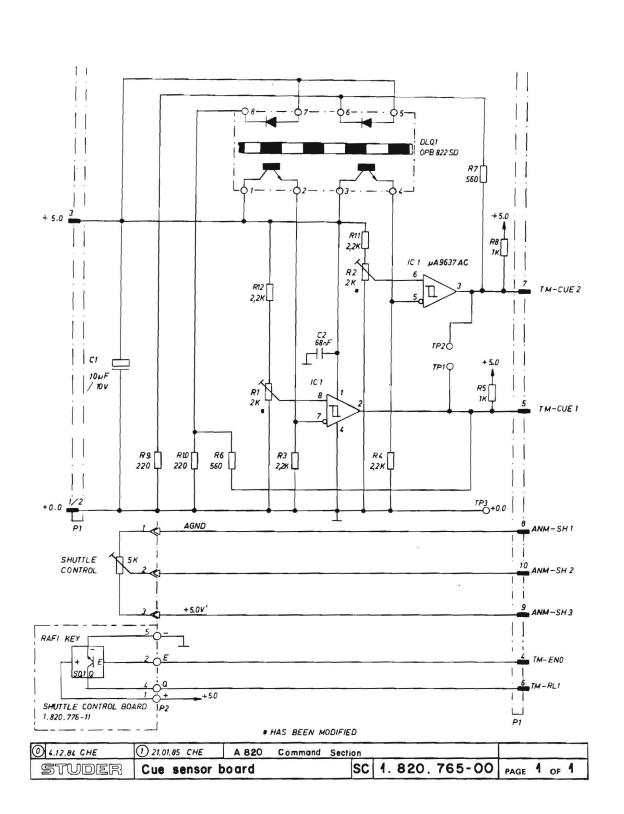


| MANUF. | SPECIFICATIONS / EQUIVALENT | VALUE | PART NO.     | POS-NO.  | 140. |
|--------|-----------------------------|-------|--------------|----------|------|
|        | see note 1                  | 24 V  | 51.02.0145   | 00.2     |      |
|        | see note 1                  | 24 V  | 51.02.0145   | b Q . 3  |      |
|        | see note 1                  | 24 V  | 51-02-0145   | B 0 - 4  |      |
|        | see note 1                  | 24 V  | 51.02.0145   | b D - 5  |      |
|        | ser note l                  | 24 V  | 51-02-0145   | 8 6-6    |      |
|        | see note i                  | 24 V  | 51-02-0145   | E 0 . 7  |      |
| St     | lamp holder                 |       | 1.080.265.00 | X90-2    |      |
| St     | lamp holder                 |       | 1.084.265.00 | x3G.3    |      |
| St     | lamo holder                 |       | 1.080.265.00 | X8       |      |
| St     | lamo holder                 |       | 1.080.265.00 | 46 5     |      |
| St     | lamp holder                 |       | 1.080.265.00 | X8 U . 6 |      |
| St     | lamo holder                 |       | 1-080-265-00 | XR D . 7 |      |

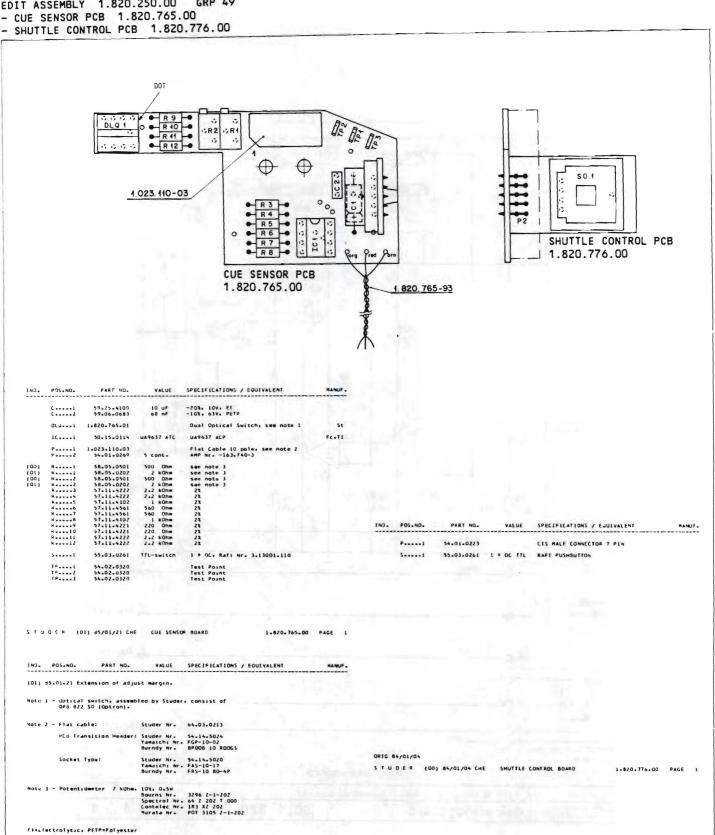
Yote 1 - Indicator lamp: Taunuslicht nr. 5530 24 V, 40 mA Oshino nr. OL - 552440

ORIG 84/11/23

EDIT ASSEMBLY 1.820.250.00 GRP 49 - CUE SENSOR PCB 1.820.765.00 - SHUTTLE CONTROL PCB 1.820.776.00



GRP 49 EDIT ASSEMBLY 1.820.250.00

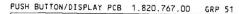


1.820.765.00 PAGE 2

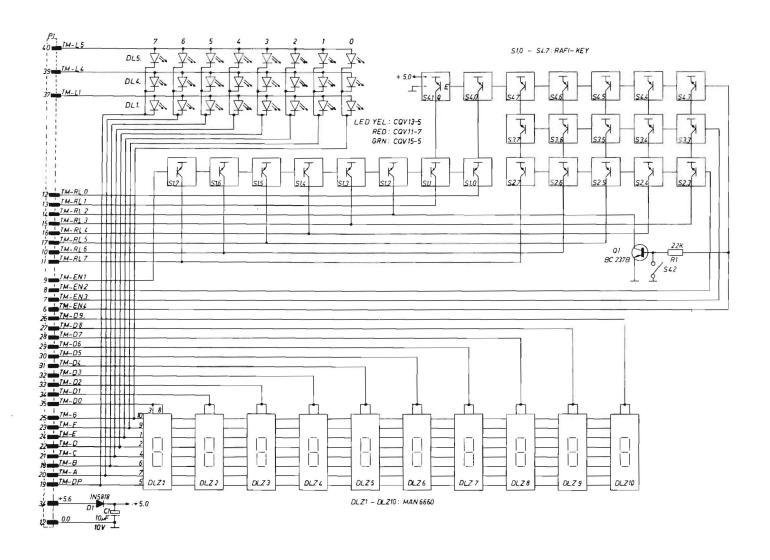
PUBLISHED: 08/86

0416 64/12/04 (01) 85/01/21

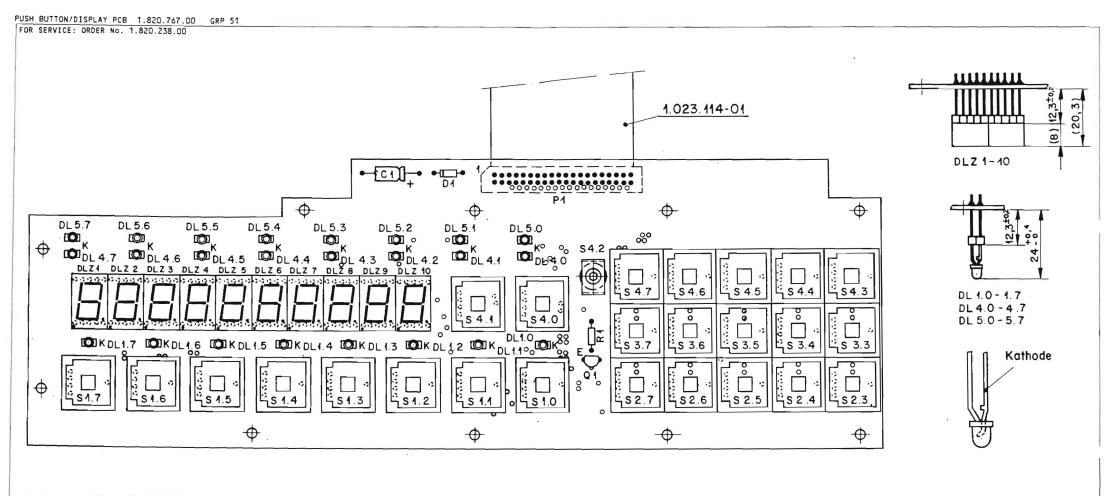
5 T U D E R (01) 65/01/21 CHF CUE SENSOR BOARD



FOR SERVICE: ORDER No. 1.820.238.00



| 28.11.84 R.SUTER | A820 Command              | Section         |             |
|------------------|---------------------------|-----------------|-------------|
| STUDER           | Push Button / Display PCB | SC 1.820.767.00 | PAGE 1 OF 1 |

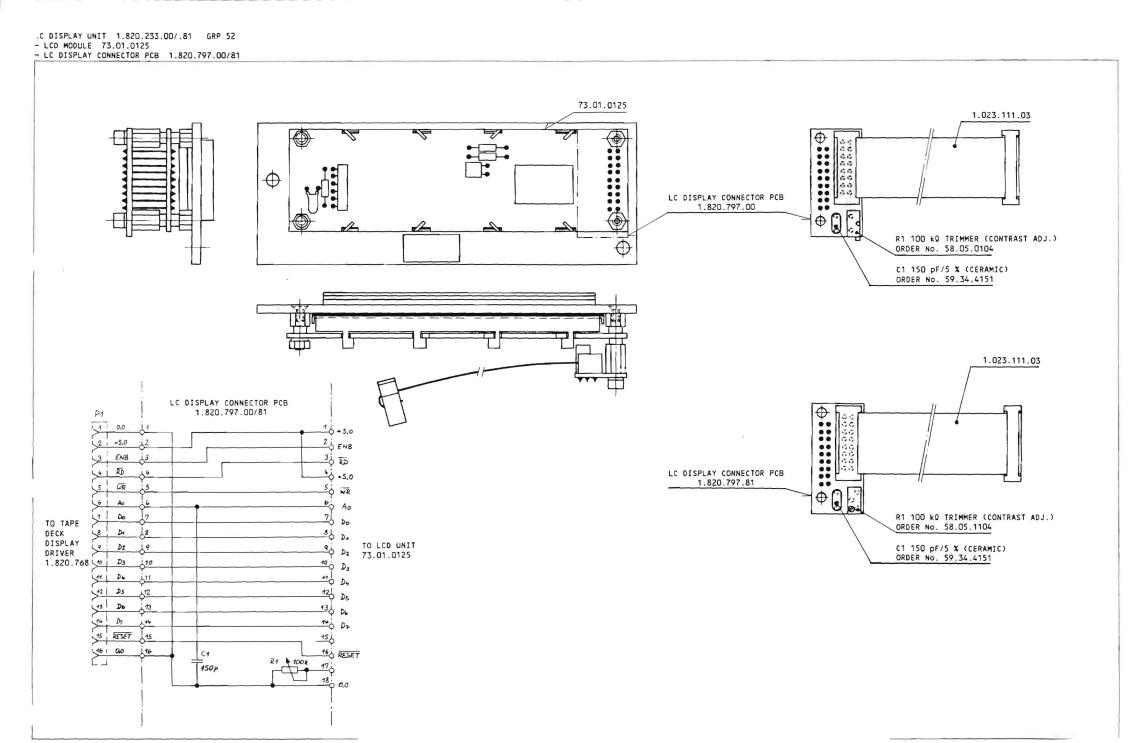


| **  | *******     |                |           |                                 | MANUT. |
|-----|-------------|----------------|-----------|---------------------------------|--------|
|     | Connect     | 59-22-5473     | €7 u#     | -2014 - 25v. E1                 |        |
|     | VI          | 90-04-091/     | in vain   | IN 2017                         | Ret    |
|     | W I . O     | 10.04.2110     | COV 15-7  | LED. Yello-                     | Sie    |
|     | Direct . I  | 29.04.21.10    | CO9 13-7  | LED. Yellow                     | 510    |
|     | Ok L . ?    | 20.04.2130     | LQv 13-7  | Libr Vellon                     | 510    |
|     | 10 1 . 1    | 30.04.2130     | 6 Dy 13-7 | LED. Telline                    | 510    |
|     | 101 1 - 5   | 50-04-2110     | COV 11-1  | tto, vello-                     | 510    |
|     | Di          | 50.0           | CON 11-7  | ABO, Tellaw                     | See    |
|     | U6 1 - 0    | 50.04.2130     | E-GW 13-7 | 15D. Tellow                     | 310    |
|     | 124 1 - 7   | 50.04.2130     | CON 13-7  | CED. Yellow                     | 510    |
|     | Ut          | 50.04.21.10    | COV 13-7  | till, relige                    | Sau    |
|     | Dt I        | 50.04-2133     | COV 13-7  | LaD. Yellow                     | 510    |
|     |             | 50-04-2130     | COV 13-7  | LED. Yellow                     | 310    |
|     | 01 4-3      | 50-05-2130     | COV 11-7  | Lio, relige                     | Sie    |
|     | 04          | 50.04.2131     | COV 15-5  | LEDs Green. Cay 15-6            | Sie    |
|     | DL 4- 2     | 50.04.2129     | COV 11-7  | LEO. Red                        | 510    |
|     | 01          | 20.0           | C DV 13-7 | Ltfle Tellige                   | Sie    |
|     | Dt 7        | 11.15.00.00    | COV 13-5  | LED. Green, CQV 13-6            | 510    |
|     | UL 5-0      | 50.04.2130     | E QV 11-7 | Cip. Yellow                     | Sie    |
|     | 04 5 . 1    | 50.04.2129     | CO+ 11-7  | LED. Red                        | Sie    |
|     | Seces In    | 50.04.21.90    | CQV 13-1  | Life. Yellow                    | 510    |
|     | D 5 . 1     | 58-04-2130     | CQV 13-1  | LED. Tella-                     | 510    |
|     | 15          | 30.04.21 10    | COV 13-1  | LEQ. Tellar                     | 510    |
|     | UL          | 50-05-2130     | COV 13-7  | telle Yellow                    | Sie    |
|     | DL 5-0      | 30-04-2130     | COV 13-7  | Lin. Yellow                     | Sie    |
|     | in 7 . 7    | 50-04-2130     | COV 13-7  | LID, Yellow                     | 510    |
|     | Witness     | 13.01.0124     | MAN 0050  | 7-Segments. Red. Brightness "C" | 61     |
|     | EL 4 2      | 73-01-012+     | MAN GOSD  | 1-Segments, Red, Brightness "G" | 61     |
|     | Ut. C 3     | 73.01.0174     | MAN 0450  | 7-Sequents, Red, Brightness "G" | 61     |
|     | 04.2 4      | 73.01.0124     | MAN DOGG  | 7-Segments, Red, Brightness "G" | GI     |
|     | 44.7 5      | 73-01-012-     | MAN 6660  | 7-Segments. Red. Brightness "C" | 61     |
|     | 01. 2 0     | 73.01.0124     | MAN 9000  | 7-Sequents, Red, Brightness "C" | 61     |
|     | 44.2 7      | 13.01.012.     | RAN BBSG  | 7-Segments: Red. Brightness "G" | 61     |
|     | 01.2 0      | 13.01.0124     | MAR 8660  | 7-Segments. Red. Brightness "G" | G i    |
| 5 T | U 0 1 1 100 | 1 84/11/28 CHE | PUSHBUTTO | DISPLAY BOARD 1.820-162-00      |        |

| NI. | POS-NO.   | PART NO.     | VALUE         | SPECIFICATIONS / EQUIVALENT  | MANUF     |
|-----|-----------|--------------|---------------|--|-----------|
|     |           |              |               |  |           |
|     | 44        | 73-01-01/4   | MAN AGAIL     | 1-Segments. Sec. Brightness "G"  | 6.1       |
|     | 01.1 19   | 73.01.0124   | MAN BRAD      | 7-Segments. Red. Brightness "C"  | 61        |
|     |           |              |               | The state of the s |           |
|     | P         | 1.023.114.01 |               | Flat cable 40 poles see note 1   | 50        |
|     |           |              |               |  |           |
|     | ******    | 50-03-9416   | BC 237 0      | 8C 547 N. SC 550 H [11].   | ot.Phisie |
|     | 4 1       | 57.11.4723   | 22 Milha      | 71   |           |
|     |           |              |               | 110  |           |
|     | Sec-1.0   | 25.21.0761   | Tfl-switer    | 1 * OC. #af: br. 1-11001-110   |           |
|     | Sec-1-1   | 55.03.0761   | TIL-SHILES    | 1 = 0C. Auf : Nr. 3-13001-110  |           |
|     | Secole?   | 55-03-0261   | TIL-SWITCH    | 1 * 05 . 84fr Mr. 1.13001.110  |           |
|     | 3         | \$5.03.0761  | fit-serten    | 1 * 06. Raft Nr. 3-13001-110   |           |
|     | See. 1.4  | 95.01.02a1   | ITE-Senten    | 1 + OC. 4aft Mr. 3-13001-110   |           |
|     | 3         | 55.03.0261   | TIL-switch    | 1 * 00. Faft Mr. 3-13001-110   |           |
|     | Sec. 1.0  | 55.03.0261   | fft-swittn    | 1 * OC. Rafi Nr. 3-13001-110   |           |
|     | Secol-7   | 55-03-0261   | FIE-SHIEED    | 1 . DC. Raft Mr. 3-13001-110   |           |
|     | 4         | 55-05-0261   | ITE-SWISEN    | 1 * 00. Raft Nr. 3-13001-110   |           |
|     | A         | 35.03.0761   | TIE-SHIELD    | 1 * 95. Rafi Mr. 3-13001-110   |           |
|     | See. 6.5  | 95-23-2761   | TEL-Switch    | 1 * DC. Rafy Nr. 3-13001-110   |           |
|     | \$        | 55.03.0261   | TEL-switch    | 1 * 06+ 4ef: Nr. 3-13001-110   |           |
|     | S 1       | 95-03-02-1   | TTL-SWISED    | 1 * 06+ Ref: Nr. 1-13001-110   |           |
|     | 1 5 . 3   | 55.03.0761   | THE - SHITCH  | 1 * 00- Wafs Nr. 3-13001-110   |           |
|     | 3 3.4     | 35.03.0261   | TTL-seiten    | 1 * DC. Cars Wr. 3.13001.110   |           |
|     | 5 1.5     | 95.03.0261   | TTL-switch    | 1 * OC. #ar: Nr. 3-13001-110   |           |
|     | See- 3.5  | 55.21.9261   | FIL-SHIER     | 1 = 00. #af: Ar. 3.13001.110   |           |
|     | Sec. 2. 1 | 22-03-9261   | TTE-SWITCH    | 1 * DC. Eaf: Nr. 3-13001-110   |           |
|     | *****     | 55.01.0201   | fft-switch    | 1 * OL. Raft Nr. 3.13001.210   |           |
|     | A         | 55.03.0261   | fit-switch    | 1 * 00. Rafe Nr. 3.13001.116   |           |
|     | 5         | 1-670-767-01 |               | Contact how  |           |
|     | Seeline 2 | 1.020.767.02 |               | Insulator Sleeve   |           |
|     | Sections  | 1.010.049.22 |               | Rivet nut  |           |
|     | 5 1 2     | 21.53.0371   |               | Scree + * 3 * 14   |           |
|     | h         | 91-01-0201   | TTL-switch    | 1 * 06 . Kaf: Nr. 3-15001-110  |           |
|     | 5         | 55.23.0241   | TIL-Switch    | 1 = 00. Rafi Nr. 3-13001-110   |           |
|     | 3 5       | 55.01.07ml   | fil-switch    | 1 * OC. Est. br. 3-13001-110   |           |
|     |           | 55.03.0201   | TEL-Set kells | 1 * OC. 4afi Nr. 3.13001.110   |           |

| ion i - clas canter   | Studen fr.                      | 64.01.0715                   |              |      |  |
|---|---------------------------------|------------------------------|--------------|------|--|
| ALC Transition meagers  |                                 |                              |              |      |  |
|   | tanaichi hi.                    | #EP+40-02<br>#FDDD AD FDDGS  |              |      |  |
|   | T2000028-00003                  |                              |              |      |  |
| oncert lype:  | Kamper Nr.                      |                              |              |      |  |
|   | burndy w.                       | 845-47 MO-7P                 |              |      |  |
| the last above  |                                 |                              |              |      |  |
| -1-1-1-1-1-1-1  |                                 |                              |              |      |  |
| MANUFACTURE - Dr of chammeral finance<br>Physical Laws - Same | uments. III:1<br>Scottens. Stri | ntermetall, MotoMo<br>Cuder. | torola.      |      |  |
| leto espitant   |                                 |                              |              |      |  |
|   |                                 | OLIGAN ACIDE                 | 1.820.157.00 | PAGE |  |

\$ ...... 35-01-0261 TR-switch 1 4 00- 861; 8r. 3-13001-110

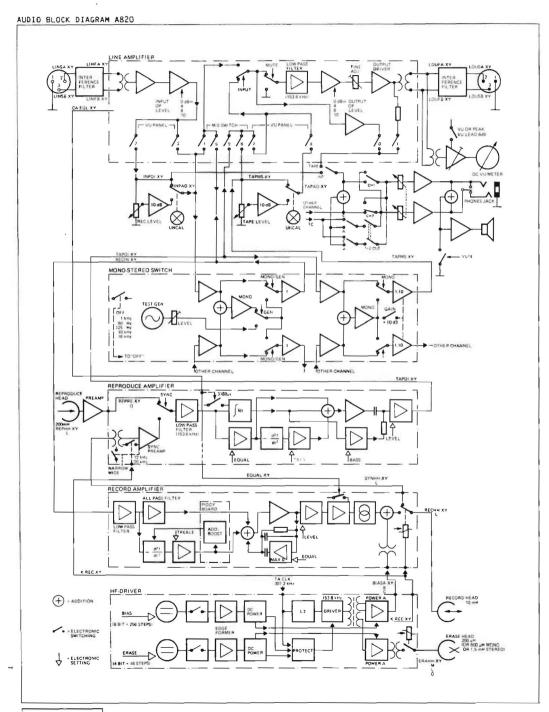


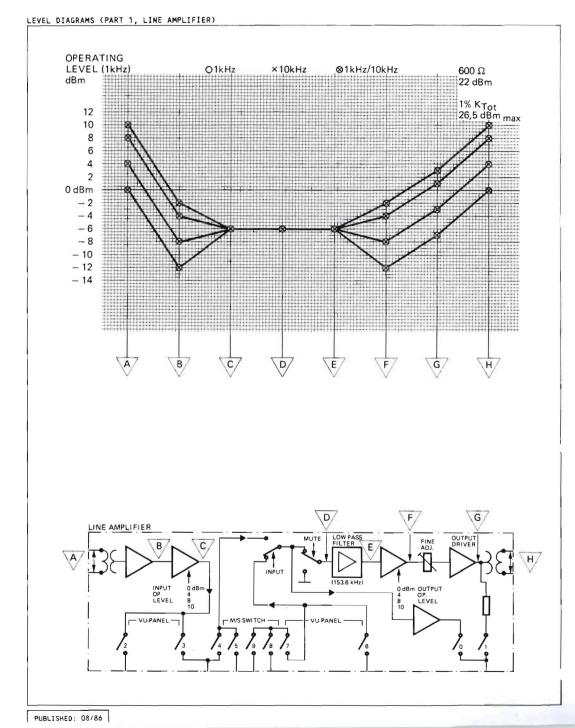
STUDER AB20

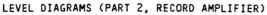
## 7 DIAGRAMS AUDIO SECTION

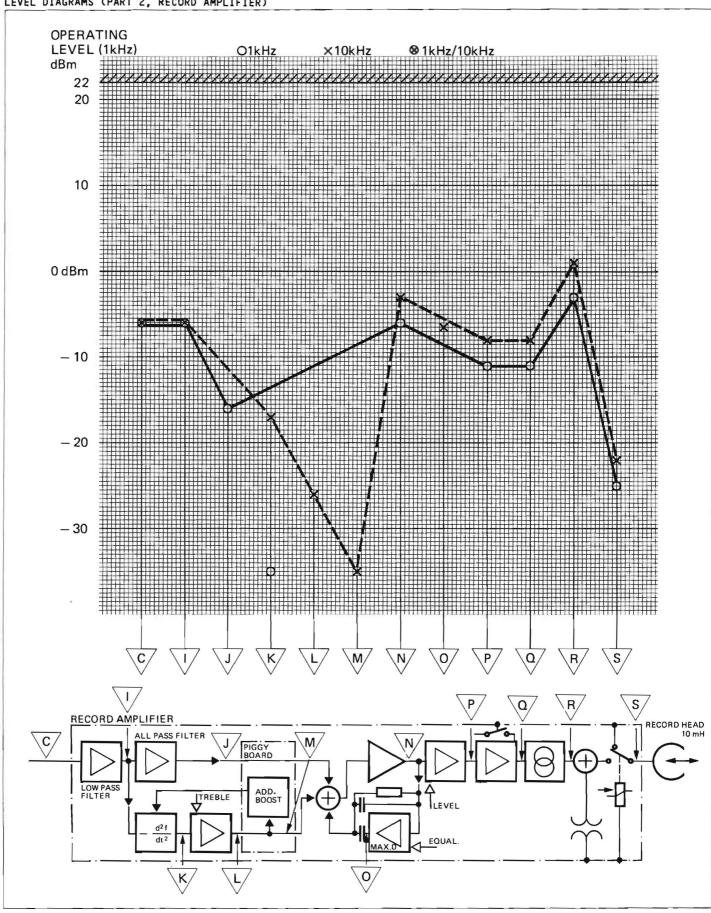
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| LEVEL DIAGRAMS (PART 5, REPRODUCE AMPLIFIER)   |                                  |                |      |
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| REPRODUCE AMPLIFIER PCB "ESE"  | 1.820.710.82                     | GRP21/ELM44,49 | 7/23 |
| REPRODUCE AMPLIFIER PCB "ESE"  | 1.820.710.83                     | GRP21/ELM44,49 | 7/25 |
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| - VU-METER AMPLIFIER PCB "ESE"   | 1.820.730.81                     |                | 7/41 |
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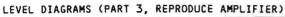
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| 1.328.256.00                         | - PUSHBUTTON PCB <accessory> (PART OF 1.328.255)</accessory>  | 9/7            |
| 1.328.257.00                         | - CONNECTOR PCB <accessory> (PART OF 1.328.255)</accessory>   | 9/9            |
| 1.328.271.00                         | - TIMER DISPLAY PCB (ACCESSORY) (PART OF 1.328.270)   | 9/17<br>9/15   |
| 1.328.272.20<br>1.810.710.81         | - TIMER DRIVER PCB <accessory> (PART OF 1.328.270) REPRODUCE PREAMPLIFIER PCB 1CH "ESE" REPRODUCE PREAMPLIFIER PCB 2CH "ESE"</accessory>            | 7/19           |
| 1.810.711.81                         | REPRODUCE PREAMPLIFIER PCB 2CH "ESE"  | 7/19           |
| 1.810.712.00                         | REPRODUCE PREAMPLIFIER PCB 2CH 1/2" "ESE"   | 7/21           |
| 1.810.735.12<br>1.810.751.82         | - LED PCB (PART OF 1.328.250) RS232/DATA SAVE INTERFACE PCB   | 9/3<br>6/13    |
| 1.810.757.00                         | - BUS DISPLAY PCB (PART OF 1.810.751)   | 6/13           |
| 1.810.762.82                         | - VARISPEED CONTROL PCB <accessory> (PART OF 1.328.253/.290)</accessory>  | 9/29           |
| 1.810.763.81                         | NRS CONTROL PCB (OPTION)  | 7/53           |
| 1.820.510.00                         | POWER SUPPLY (PRIMARY) POWER SUPPLY (SECONDARY)   | 5/63<br>5/64   |
| 1.820.510.00<br>1.820.700.00         | PACIS PER AUDIO (LAYOUT 12)   | 7/3            |
| 1.820.700.00                         | BASIS PCB AUDIO (LAYOUT .12) BASIS PCB AUDIO (LAYOUT .13)   | 714            |
| 1.820.701.00                         | BASIS PCB TAPE DECK REPRODUCE AMPLIFIER PCB "ESE" REPRODUCE AMPLIFIER PCB "ESE"   | 5/75           |
| 1.820.710.82                         | REPRODUCE AMPLIFIER PCB "ESE"   | 7/23           |
| 1.820.710.83<br>1.820.712.81         | REPRODUCE AMPLIFIER PCB "ESE"  RECORD AMPLIFIER PCB "ESE"   | 7/13           |
| 1 820 713 00                         | HE DRIVER PCB "ESE"   | 7/15           |
| 1.820.714.83                         | LINE AMPLIFIER (WITH TRANSFORMERS) PCB "ESE"  | 7/7            |
| 1.820.715.00/.81                     | LINE AMPLIFIER (TRANSFORMERLESS) PCB "ESE"  | 7/9            |
| 1.820.720.00                         | MONO/STEREO SWITCH PCB "ESE"  | 7/27<br>7/31   |
| 1.820.721.83/.84                     | TIME CODE READ/WRITE UNIT "ESE" TIME CODE READ/WRITE UNIT "ESE"   | 7/33           |
| 1.820.722.81                         | TIME CODE DELAY UNIT "ESE"  | 7/37           |
| 1.820.724.00                         | MONO/STEREO SWITCH WITH TEST GENERATOR "ESE"  | 7/29           |
| 1.820.727.00                         | CAPSTAN INTERFACE PCB "ESE"   | 5/119<br>6/11  |
| 1.820.729.20                         | MASTER PERIPHERY CONTROLLER PCB "ESE" SERIAL REMOTE INTERFACE PCB "ESE" (OPTION)  | 6/23           |
| 1.820.730.81                         | - VU-METER AMPLIFIER PCB "ESE" (PART OF 1.810.320)  | 7/41           |
| 1.820.731.00                         | - CALIBRATION PCB (PART OF 1.810.320)   | 7/43           |
| 1.820.732.00                         | - CHANNEL CONTROL PCB (PART OF 1.810.320/.335) TC CHANNEL CONTROL PCB (PART OF 1.810.337)   | 7/45           |
| 1.820.735.00<br>1.820.737.00         | FUSE/SUPPLY FAILURE DETECTOR PCB "ESE"  | 5/73           |
| 1.820.738.00                         | PARALLEL REMOTE INTERFACE PCB "ESE"   | 6/19           |
| 1.820.739.11                         | - FRONT PANEL PCB (PART OF 1.820.720/.724)  | 7/27           |
| 1.820.740.00                         | - ADAPTATION PCB (PART OF 1.820.712)  | 7/29           |
| 1.820.749.00                         | INTERFERENCE FILTER PCB   | 7/5            |
| 1.820.751.20                         | SMPTE/EBU INTERFACE PCB (OPTION)  | 6/15           |
| 1.820.753.00                         | MASTER SERIAL INTERFACE PCB "ESE"   | 6/7            |
| 1.820.759.81/.82                     | SPOOLING MOTOR DRIVER PCB "ESE" SPOOLING MOTOR CONTROLLER PCB "ESE"   | 5/109<br>5/103 |
| 1.820.761.00                         | TAPE DECK COUNTER/TIMER PCB "ESE"   | 5/95           |
| 1.820.762.00                         | TAPE DECK PERIPHERY CONTROLLER PCB "ESE" TAPE DECK SERIAL INTERFACE PCB "ESE"   | 5/85           |
| 1.820.763.81                         | TAPE DECK SERIAL INTERFACE PCB "ESE"  | 5/81<br>5/117  |
| 1.820.764.22<br>1.820.765.00         | CAPSTAN CONTROL UNIT PCB "ESE" - CUE SENSOR PCB (PART OF 1.820.250)   | 6/33           |
| 1.820.766.00                         | - TAPE DECK INDICATOR PCB (PART OF 1.820.240)   | 6/31           |
| 1.820.767.00                         | PUSH BUTTON/DISPLAY PCB   | 6/35           |
| 1.820.768.81                         | TAPE DECK DISPLAY DRIVER PCB "ESE"  | 6/27           |
| 1.820.769. <b>00</b><br>1.820.770.00 | - TAPE DECK PUSH BUTTON PCB (PART OF 1.820.240)   | 6/29<br>5/97   |
| 1.820.771.81                         | MOVE SENSOR PCB "ESE" MOTOR TACHO PCB "ESE"   | 5/99           |
| 1.820.772.00                         | TAPE TENSION SENSOR PCB   | 5/105          |
| 1.820.773.81/.82                     | TAPE LIFTER CONTROL PCB   | 5/91           |
| 1.820.774.22<br>1.820.775.81         | CAPSTAN MOTOR DRIVE AMPLIFIER PCB "ESE" SPOOLING MOTOR DRIVE AMPLIFIER PCB "ESE"  | 5/123<br>5/113 |
| 1.820.776.00                         | - SHUTTLE CONTROL PCB (PART OF 1.820.250)   | 6/33           |
| 1.820.777.00                         | - SHUTTLE CONTROL PCB (PART OF 1.820.250) SPOOLING MOTOR SUPPLY PCB "ESE" MP UNIT TAPE DECK CONTROL "ESE" MP UNIT MASTER "ESE"                      | 5/71           |
| 1.820.785.21                         | MP UNIT TAPE DECK CONTROL "ESE"   | 5/77           |
| 1.820.786.21                         | MP UNIT MASTER "ESE"<br>SWITCHING STABILIZER PCB  | 6/3<br>5/67    |
| 1.820.792.00                         | - STABILIZER/LIMITER PCB (PART OF 1.820.790)  | 5/67           |
| 1.820.793.81                         | OPTO SENSOR PCB   | 5/87           |
|                                      | DISTRIBUTION PCB HEAD ASSEMBLY IDENTIFIER PCB   | 7/39<br>7/49   |
| 1.820.795.00<br>1.820.796.00         | - SOURCE SELECTOR PCB (PART OF 1.820.235/.580)  | 7/51           |
| 1 820 797 00/ 81                     | - LC DISPLAY CONNECTOR PCB (PART OF 1.820.233)  | 6/37           |
| 1.820.860.00                         | - MONITOR AMPLIFIER PCB "ESE" (PART OF 1.820.235/.580) TIME COUNTER CONTROL PCB (OPTION)  | 7/51<br>5/131  |
| 1.820.861.00                         | TIME COUNTER CONTROL PCB (OPTION) - LINE OUTPUT AMPLIFIER PCB "ESE" (PART OF 1.820.715)   | 5/131<br>7/9   |
|                                      |   | 2000           |

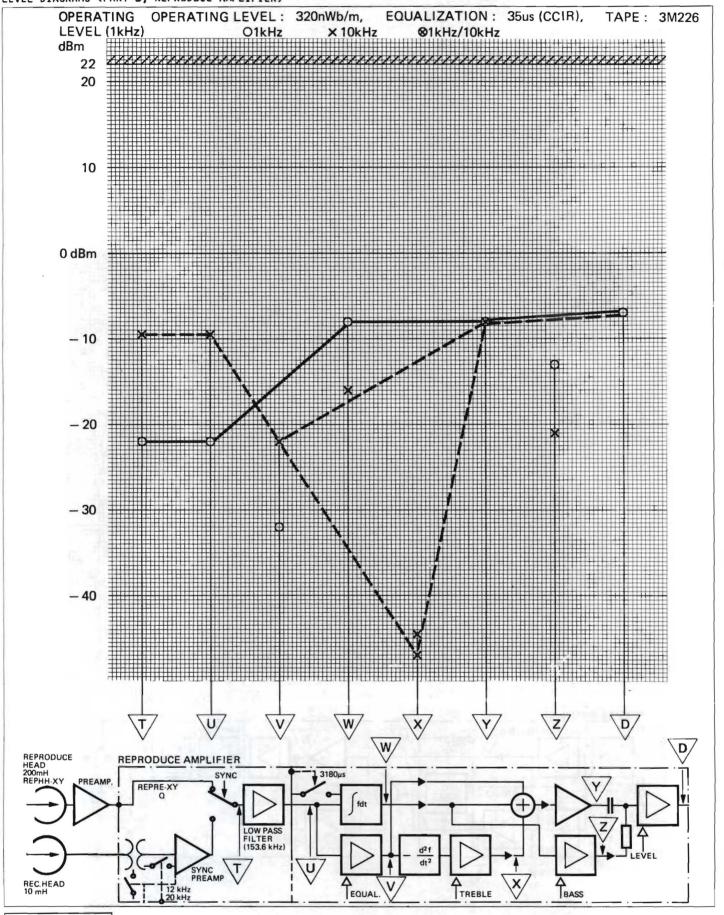


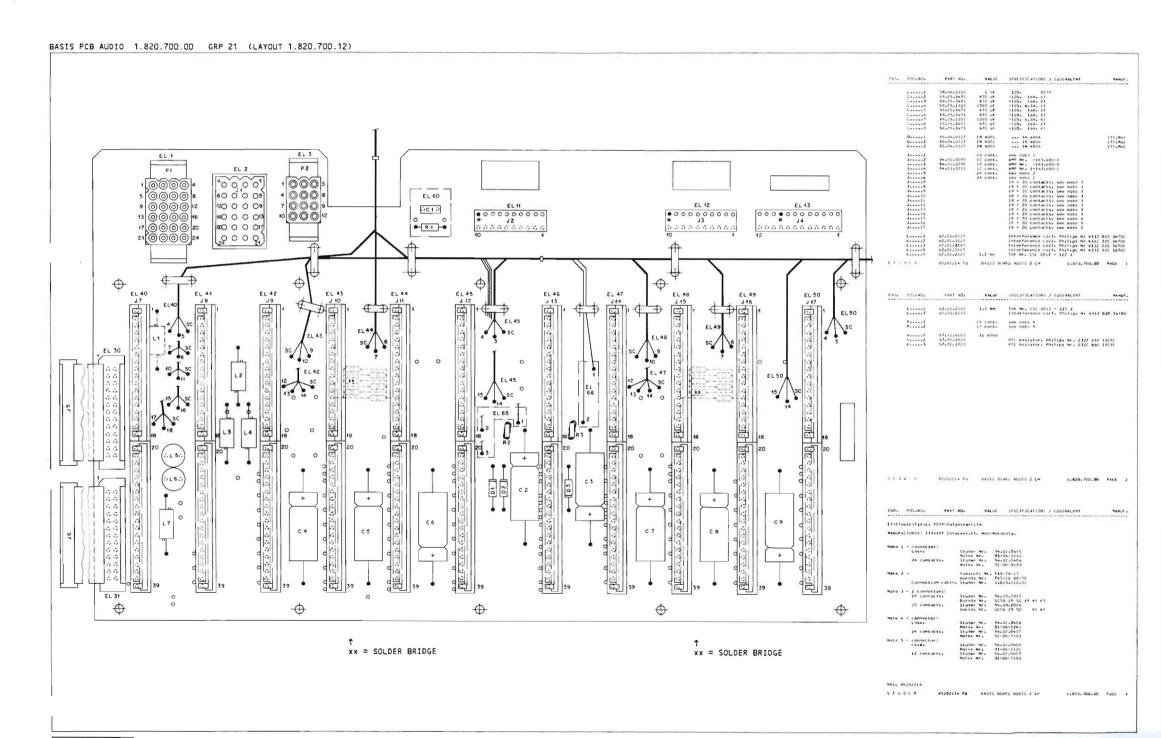


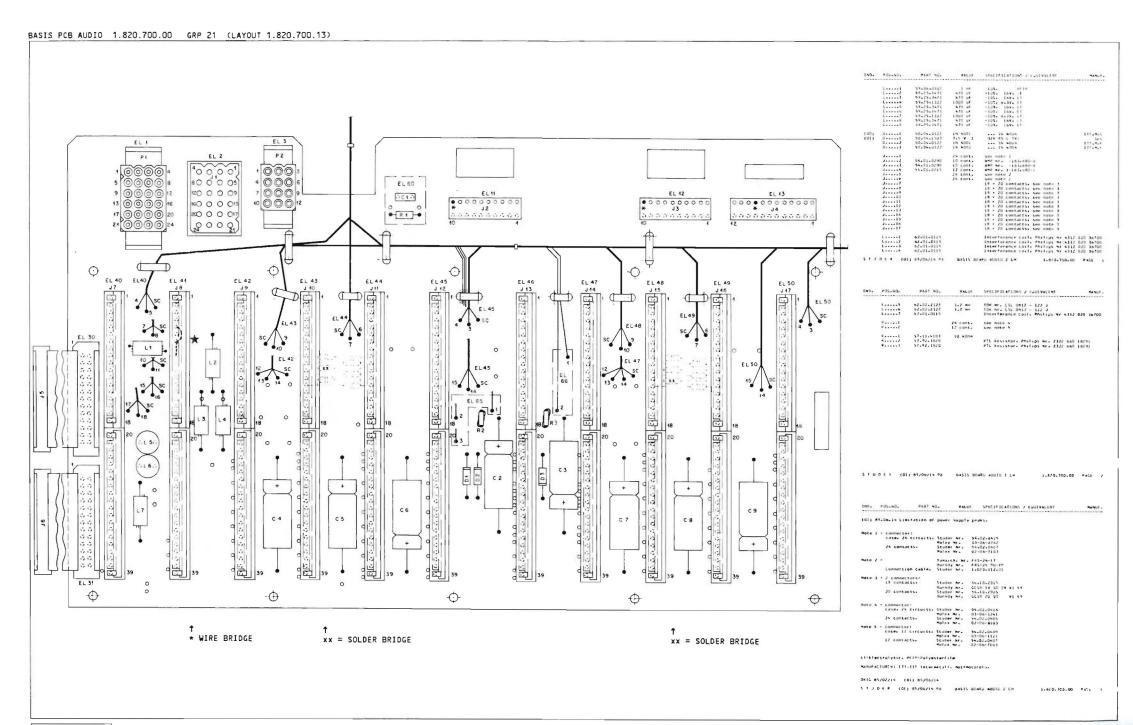






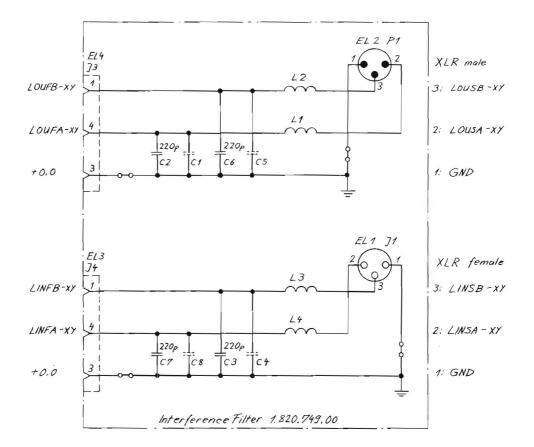






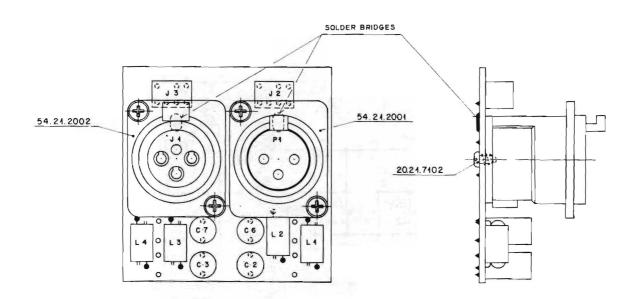
INTERFERENCE FILTER PCB 1.820.749.00 GRP 22...24

R C 2,7, 1,8, 6,3, 5,4



| 03.08,82 | gimpale L5   | A 820 / A 810 | Audio / Time Co | de Section |        | GR 35 | /36/37 | 9 |
|----------|--------------|---------------|-----------------|------------|--------|-------|--------|---|
| STUDER   | Interference | Filter        | sc              | 1.820      | 749-00 | PAGE  | 1 OF   | 1 |

## INTERFERENCE FILTER PCB 1.820.749.00 GRP 22...24

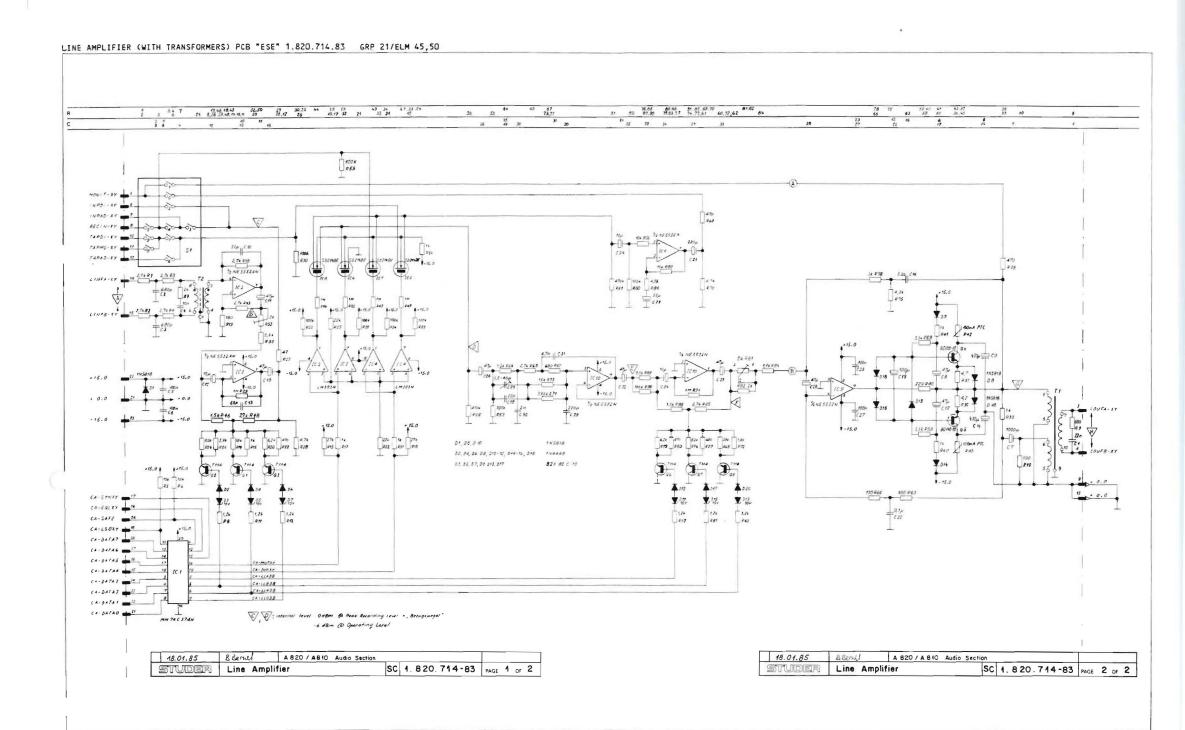


| HANUF     | EQUIVALENT        | SPECIFICATIONS /  | VALUE    | PART NO.   | -04-204 | IND. |
|-----------|-------------------|-------------------|----------|------------|---------|------|
|           |                   |                   | not used |            | C001    |      |
| ERO.NSF   |                   | 630V, PP          | 220 pF   | 59-05-1221 | C002    |      |
| ERO, NSF  |                   | 630V+ PP          | 220 pF   | 59-05-1221 | C 003   |      |
|           |                   |                   | not used |            | C 004   |      |
|           |                   |                   | not used |            | C 005   |      |
| ERO. NSF  |                   | 630V, PP          | 220 pF   | 59.05-1221 | C 006   |      |
| ERO, NSA  |                   | 630V. PP          | 220 pF   | 59.05.1221 | C 007   |      |
|           |                   |                   | not used |            | C 008   |      |
|           | rik Nr. NC 3FD-V  | XLR socket, Neutr |          | 54-21-2002 | J001    |      |
|           | 2                 | AMP Nr. 163.681-2 | 4 cont.  | 54.01.0298 | J 003   |      |
|           | 2                 | AMP Nr. 163.681-2 | 4 cont.  | 54.01.0298 | J004    |      |
| 020 36700 | , Philips Nr 4312 | Interference-Coil |          | 62-01-0115 | L 001   |      |
| 020 36700 | Philips Nr 4312   | Interference-Coil |          | 62.01.0115 | L 002   |      |
| 020 36700 | . Philips Nr 4312 | Interference-Coil |          | 62.01.0115 | L003    |      |
| 020 36700 | , Philips Nr 4312 | Interference-Coil |          | 62-01-0115 | L 004   |      |
|           | Nr. NC 3MO-V      | XLR plug. Neutrik |          | 54-21-2001 | P 001   |      |

MANUFACTURER: ERO=E. Roederstein, NSF=AEG-Telefunken-NSF.

ORIG 82/08/03 S T U D E K (00) 82/08/03 GAE INTERFERENCE FILTER

1.820.749.00 PAGE 1



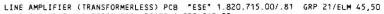
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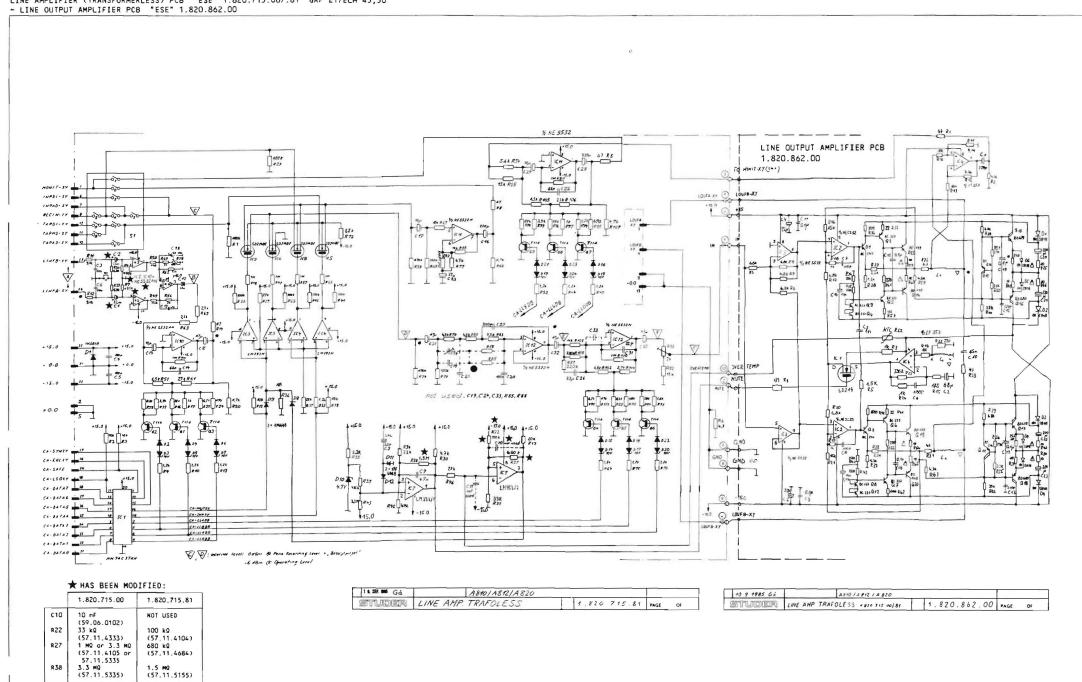
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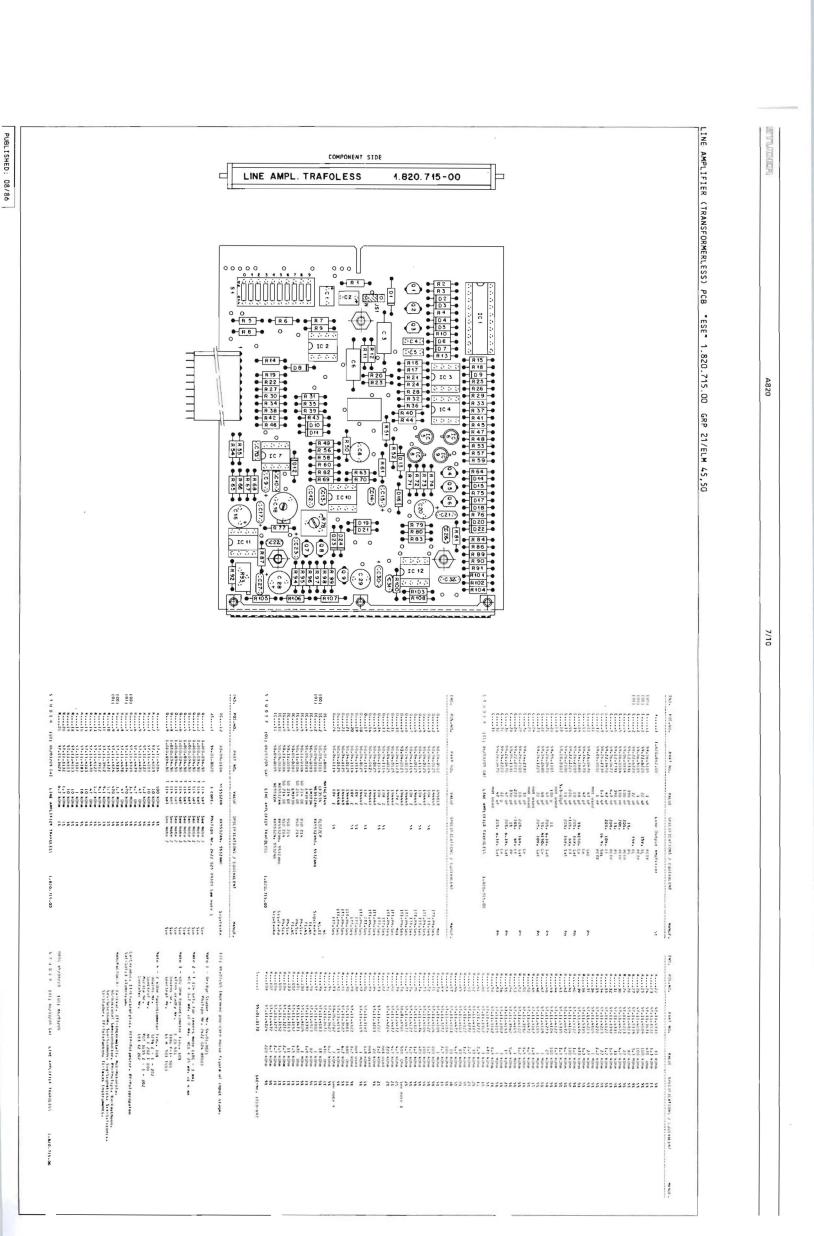
LINE AMPLIFIER (WITH TRANSFORMERS) PCB "ESE" 1.820.714.83 GRP 21/ELM 45,50





R38

1.5 MQ (57.11.5155)



A820

1 C 12 NAC WE BUTWA 100 211 100 211 100 211 100 211 201. 6.Jv. 995995 10 to See note 1 MANGET . \*\*\*\*\*\*\*\*\*\* 1001 8 5 0 n 1 5 0810 89/01/13 AND STREET F05, NO. Spectral W. Spectral W. Marata W. Philips Nr. 2422 924 88003 afterna.

LINE AMPL. TRAFOLESS

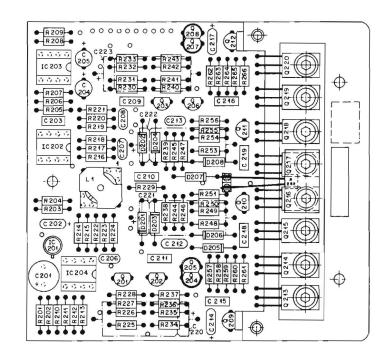
IC 2

4.820.715-XX

(2) (10 4 t) IC 1

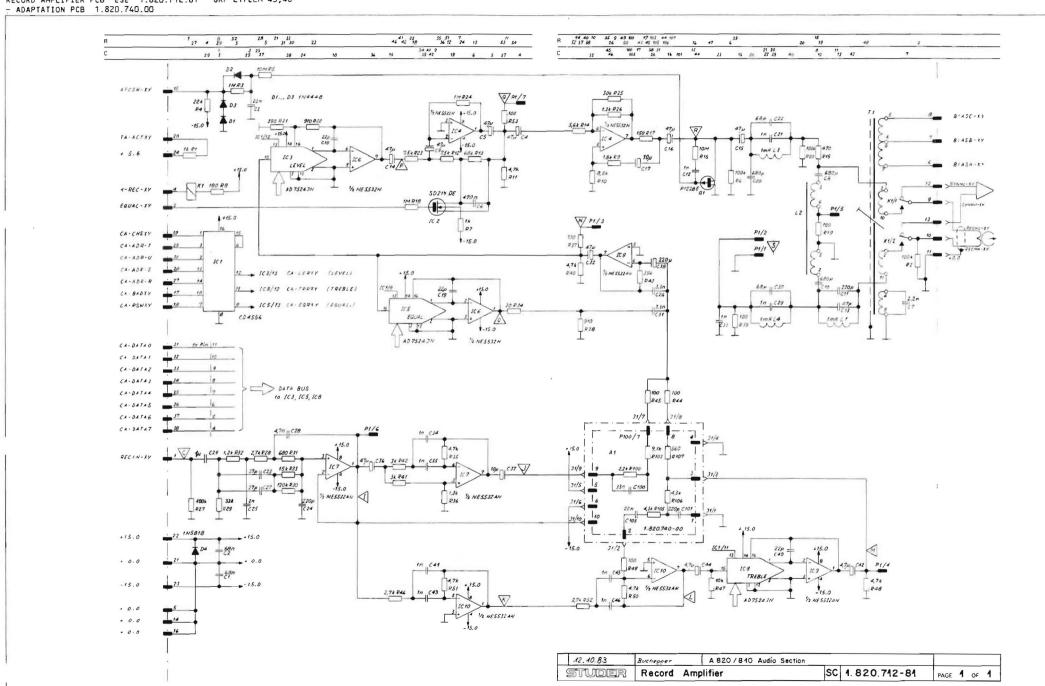
LINE AMPLIFIER (TRANSFORMERLESS) PCB "ESE" 1.820.715.81 GRP 21/ELM 45,50

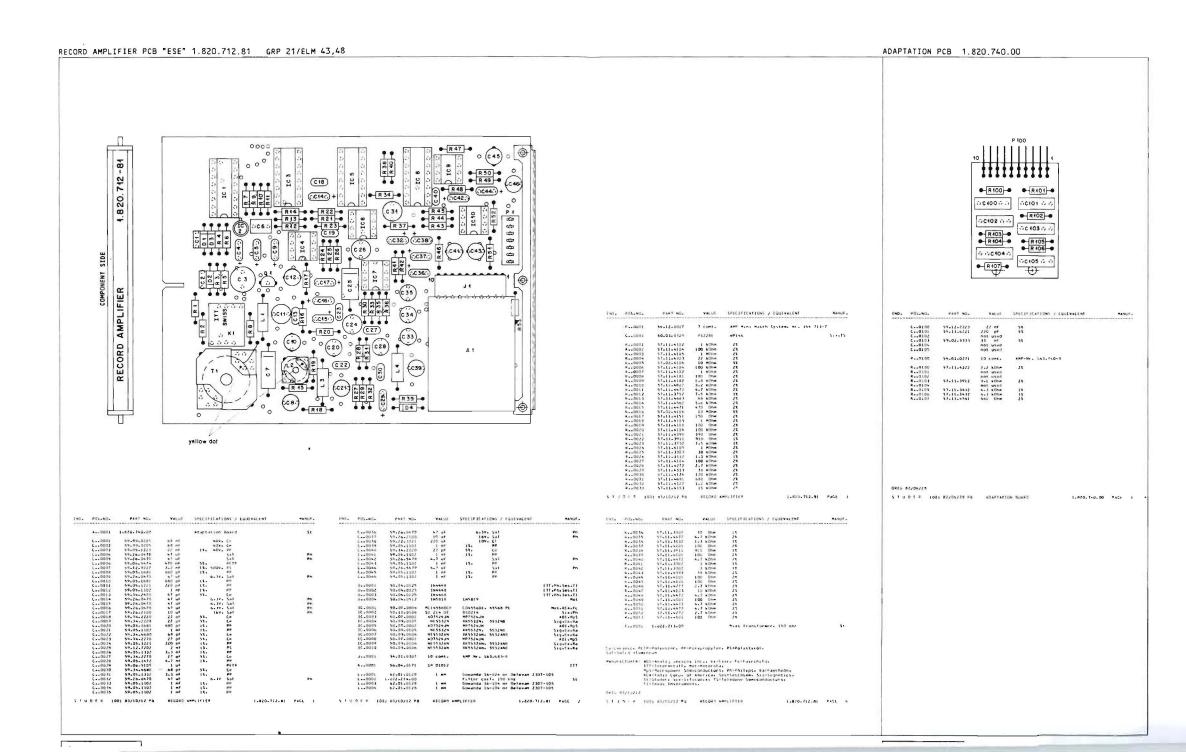
LINE OUTPUT AMPLIFIER PCB "ESE" 1.820.862.00

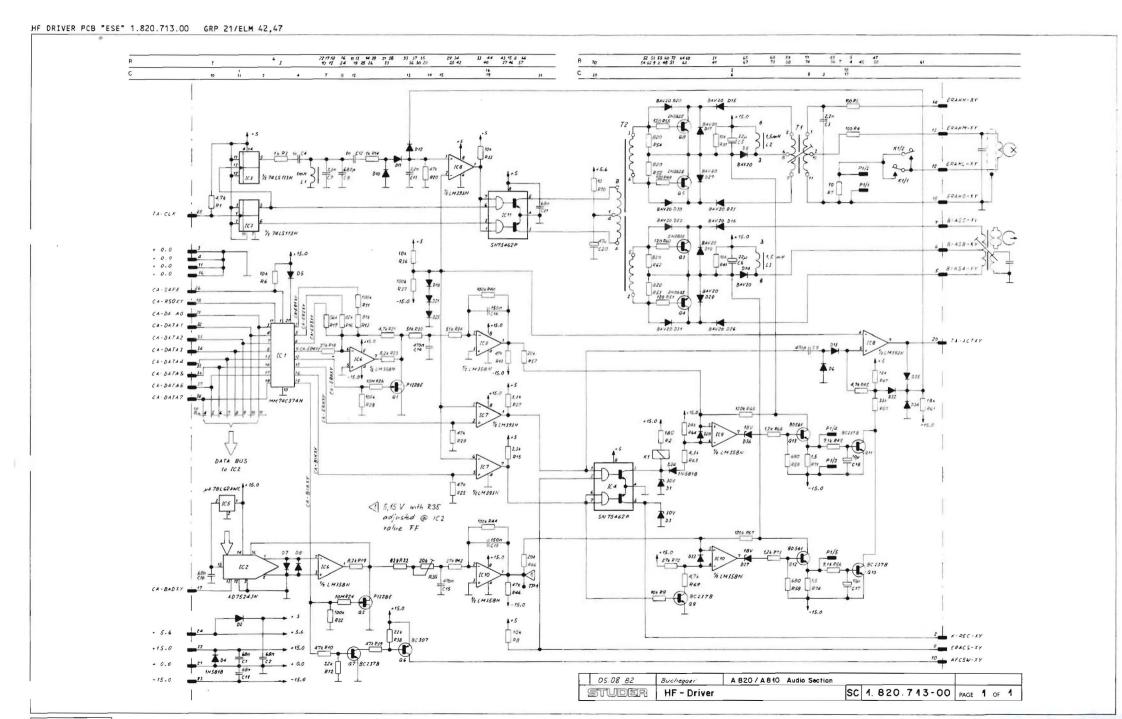


| POS.NO.                | PART NO.                                | VALUE              | SPECIFICATIONS / EQUIVA          | ENT MAMUE.        | I NO. POS-NO    | . PART NO.                   | VALUE              | SPECIFICATIONS   | / EQUIVALENT |  |
|------------------------|---|--------------------|----------------------------------|-------------------|-----------------|------------------------------|--------------------|--|--------------|--|
| C 0201                 | 59.22.3221                              | 220 UF             | -20%, 10V , E1                   |                   | R021            | 5 57-11-4152                 | 1.5 kOhm           | 51   |              |  |
| C 0101                 | 59.26.0680                              | 68 W               | -201. 6.3V . Sal                 | Ph                | ×021            |                              | 15 kOhm            | 13   |              |  |
| C 0203                 | 59.06.0102                              | 1 ms               | IQL. 63V . PETP                  |                   | A 0 2 1         |                              | 6.8 kOhe           | 1.2  |              |  |
| C 0204                 | 59.22.6220                              | 25 mg              | -20%. 35V . E1                   |                   | R021            |                              | I kOhm             | ST   |              |  |
| C 0205                 | 59.22.6220                              | 22 uf              | -20%, 35V . E1                   |                   | 8 0 2 1         |                              | 1 kom              | 51   |              |  |
| C 0 2 0 P              | 59-34-2181                              | 180 pF             | 51. 63V . Car                    |                   | X 022           |                              | 6-8 XON            | 12   |              |  |
| C 0 2 0 1              | 59-34-4101                              | 100 pf             | 51. 63V . Cer                    |                   | AO.2            |                              | 15 kOh=            | 13   |              |  |
| C 020a                 | 59.34.4101                              | 100 pf             | 51. 63V . Cer<br>101. 63V . PETP |                   | R022            |                              | 310 kOhm           | 51   |              |  |
| C0209                  | 59.06.0104                              | 0.1 uf             | 101. 63V . PETP                  |                   | A022            | 57.11.4102                   | L kOha             | 51   |              |  |
| C ** 0511              | 59.06.0153                              | 15 mf<br>Out of    | 101. 63V . PETP                  |                   | 8022            |                              | 10 Ohe             |  | Hate 2       |  |
| C 0212                 | 59.34.4221                              | 220 pf             | 51. 63V . Cer                    |                   | 8022            |                              | 4 . 7 Ohm          | 51   |              |  |
| (0/1)                  | 59.34.4221                              | 220 pF             | 51. 63V . Cer                    |                   | R 022           |                              | 2.2 kOhm           | 13   |              |  |
| C 0215                 | 59-20-2100                              | 10 0               | -201. LAV . Sal                  | Ph                | 9022            |                              | 1.3 kOns           | 12   |              |  |
| C 0 215                | 59.00.0104                              | 0-1 uf             | 101. 634 . PETP                  |                   | 8022            | 9 57-11-4470                 | 47 One             | 52   |              |  |
| 6150)                  | 59-06-010+                              | 0-1 us             | 101. bJV . PETP                  |                   | R023            |                              | 10 On=             |  | Note 2       |  |
| C 0217                 | 59.26.2100                              | 10 uf              | -20%. 16V . Sal                  | Ph.               | K023            | 1 57-11-4479                 | 4.7 Ohm            | 51   |              |  |
| C 0218                 | 59.06.0104                              | 0-1 uf             | 102. 63V . PETP                  |                   | R023            |                              | 2-2 kOn=           | 12   |              |  |
| C 0219                 | 59.06.0104                              | 0.1 uf             | 101. 634 . PETP                  |                   | 4023            |                              | 1-3 kOhm           | 13   |              |  |
| C0270                  | 59-25-5221                              | 220 uf             | -10%. 40V , EI                   |                   | 1923            |                              | 55 KOM             | 51   |              |  |
| C 0551                 | 59-25-5221                              | 220 UF             | -101, 40V , E1                   |                   | 8025            |                              | 22 KOne            | 51   |              |  |
| C 0222                 | 59.25.5221                              | 220 uf             | -101 404 . E1                    |                   | #023            |                              | 820 One            | 51   |              |  |
| C ** 0 2 2 3           | 59.25.5221                              | 220 uf             | -101. 40V , E1                   |                   | R 0 2 3         | 7 57-11-4220                 | 22 On=             | 51   |              |  |
| 11 PK - 214 100140-015 | NUMBER OF STREET                        |                    | 200 2002                         |                   | R 023           |                              | 68 kOh=            | 51   |              |  |
| 00201                  | 50.04.0512                              | IN 5818            | IN 5619<br>IN 5819               | ⊼at<br>⊼at        | R023            | 9 57.11.4663<br>0 57.11.4821 | 68 kOhm<br>870 Ohm | 51   |              |  |
| 0 0101                 | 50.04.0512                              | IN SELE            | 14 5819                          | Mot               | R024            |                              | 22 Ohm             | 51   |              |  |
| 00503                  | 50-04-0512                              | 14 5818            | IN 5819                          | Hot               | 8024            |                              | 22 kOhm            | 51   |              |  |
| 0 - 0 2 0 5            | 50-04-0512                              | 14 5818<br>14 5815 | 18 5819                          | Hot               | R024            |                              | 22 kg/m            | 51   |              |  |
| 00206                  | 50-04-0512                              | IN 5816            | IN 5819                          | Mot               | 8024            |                              | 33 kOne            | 51   |              |  |
| 00207                  | 50-04-0512                              | 170 561 6          | IN 5519                          | Hat               | 4024            |                              | 33 kOn#            | 51   |              |  |
| 00204                  | 50-09-0512                              | 14 5010            | 14 5819                          | Mot               | R024            | 6 57-19-0100                 | 10 On=             |  | Note ?       |  |
| 0110101                | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                    |                                  |                   | 4024            | 7 57-19-0100                 | 10 Or              |  | Note 2       |  |
| 10.0201                | 50-11-0106                              | 50214-0E           | 850214                           | 51 g.Ph           | R074            |                              | 10 On=             | 51   |              |  |
| 10.0202                | 50-09-0105                              | ME5532 M           | XR 5532 No 5532 NO               | Sig.Ex.Ra         | R 02 *          |                              | 10 On=             | 51   |              |  |
| 16.0203                | 50.09.0105                              | ME 5532 N          | 18 5532 N. 5532 NB               | SigoEnoRa         | 8025            |                              | 33 kOhm            | 51   |              |  |
| 16.0204                | \$0.09.0101                             | LF 353 M           | TL 072 CP                        | NS.TI             | M025            |                              | 27 k0h=            | 52   | Note 3       |  |
|                        |   |                    |                                  | 100               | R025            |                              | 11-2 k0hm          | 51   | 40(# 3       |  |
| F ** 050T              | 1-022-273-00                            | 3*150 mm           |                                  | 26                | R025            |                              | to one             | 51   |              |  |
|                        |   | 86 237 8           | 8C 357 B                         | Not . Phy Sie. Tf | R025            |                              | 33 AONE            | 51   |              |  |
| 0 0501                 | 50-03-0436                              | BC 327-25          | OC 347 B                         | Sie-Mot           | A025            |                              | 27 kOhm            | 31   |              |  |
| 00202                  | 30-03-0351                              | BC 237 8           | RC 547 B                         | Hot .PhySiayTf    | R025            |                              | 100 On=            | 53   |              |  |
| 90103                  | 50-03-0516                              | 80 337             | See Mote 1                       | Sie               | R 025           |                              | 4 . 7 kOrm         | 51   |              |  |
| 00205                  | 50-03-0516                              | BC 337             | See Hote I                       | 51.0              | 4025            |                              | 10 Dhe             |  | Hote 2       |  |
| 90206                  | 30-03-0351                              | BC 327-25          |                                  | Star Mot          | 2026            |                              | 10 Oh              |  | Hote ?       |  |
| 00207                  | 30-03-0516                              | BC 337             | See Mate 1                       | 510               | A026            |                              | 270 Ohm            | 51   |              |  |
| QOZOR                  | 30-03-0510                              | BC 337             | See Hote 1                       | 510               | R026            | 2 57-11-6101                 | 100 Ohm            | 51   |              |  |
| 00209                  | 30-01-0516                              | BC 337             | See Hate L                       | 510               | 4026            |                              | 4-7 kone           | 51   |              |  |
| 00210                  | 50.03.0448                              | BC 516             |                                  | Sie.Tl            | 8 016           | 57-19-0100                   | 10 Orm             |  | Note 2       |  |
| 9 02 11                | 50.03.0448                              | BC 516             |                                  | Simit             | 4016            |                              | 10 01-             |  | Hate 2       |  |
| 9 0212                 | 50.03.0516                              | BC 337             | See Note 1                       | 510               | H026            | 6 57-11-4271                 | 270 Ohm            | 51   |              |  |
| 00213                  | 50.03.0451                              | BO 139             |                                  | Ph<br>Ph          |                 |                              |                    |  |              |  |
| 0 0214                 | 50-03-0452                              | 80 140             |                                  | \$65.Ph           |                 |                              |                    |  |              |  |
| 00215                  | 50-03-0504                              | 80 679             |                                  | \$65.Ph           |                 |                              |                    |  |              |  |
| 00216                  | 50.03.0505                              | BO 660             |                                  | \$65.Ph           |                 |                              |                    |  |              |  |
| 90217                  | 30-03-0505                              | BD 650             |                                  | SGS+Ph            |                 |                              |                    |  |              |  |
| 90219                  | 30.01.0451                              | 80 137             |                                  | Ph                |                 |                              |                    |  |              |  |
| 00550                  | 50.03.0457                              | 80 140             |                                  | Ph                | Mote 1 -        | Should be replace            | ed as set. I       | Q4. Q5, Q9 matched   | <b>Y</b>     |  |
| 4.10610                | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |                    |                                  |                   |                 | or (07. 08. Q12              | matched)           |  |              |  |
| B 0201                 | 57-11-4470                              | 47 Otre            | 51                               |                   |                 |                              |                    |  |              |  |
| R0202                  | 57-11-4472                              | 4.7 kOhm           | 58                               |                   | Hote 2 -        |                              |                    | altype or Philips-   | Type         |  |
| R 0203                 | 37-11-4102                              | 1 kOhm             | 51                               |                   |                 | Mr - 5355 502 131            | 09                 |  |              |  |
| R0204                  | 57.11.4105                              | 1 MOha             | 51                               |                   | 2010 8          | page feet 1999 to            | 2012 11 1011 121   |  |              |  |
| R0205                  | 57-11-4152                              | 1 -5 kOm           | 31                               |                   | Mate 3 -        | MIC Thermistor F             | unitibe-war 5      | 327 640 90005  |              |  |
| 4 0206                 | 57-11-3682                              | 6.8 kOhe           | 13                               |                   |                 | 22                           |                    | 06192921   | š            |  |
| R0207                  | 57-11-3682                              | 6-8 kg/m           | 11                               |                   |                 | SalaSolid-Alumit             | e section year     | . PETPoPolyester!  |              |  |
| R0208                  | 57-11-3482                              | 4-8 kOh=           | 11                               |                   |                 | 344 4 201 13-4 Juni 1        | 11.04.             |  |              |  |
| R0209                  | 57-11-3682                              | 10 kOhm            | 13                               |                   | MANUFAC TIMES . | FERFERS. NOT -NO.            | ocola. MS-M.       | tional Semiconduct   | or.          |  |
| R0210                  | 57-11-3103<br>57-11-3472                | 4.7 30hm           | it                               |                   |                 |                              |                    | SGS/Ates, SigrSig  |              |  |
| RO211                  | 57-11-3472                              | 4.7 kOhm           | ii                               |                   |                 |                              |                    | lazas Instruments  |              |  |
| R0213                  | \$7.11.310)                             | 10 kO-             | ii                               |                   |                 | and decreased Allinois       |                    | According to Committee and Com |              |  |
| A0219                  | \$7-11-4102                             | 1 kOne             | 31                               |                   | ORIG 85/04/09   |                              |                    |  |              |  |
|                        |   |                    |                                  |                   |                 |                              |                    |  |              |  |
| *******                |   |                    | PUT AMPLIFIER                    | .820.862.00       |                 | (00) 84/04/09 88             |                    |  | 1-820-862    |  |

RECORD AMPLIFIER PCB "ESE" 1.820.712.81 GRP 21/ELM 43,48



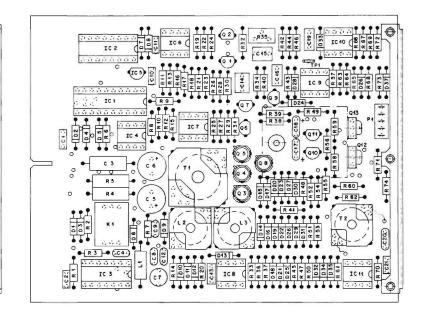




1.820.713

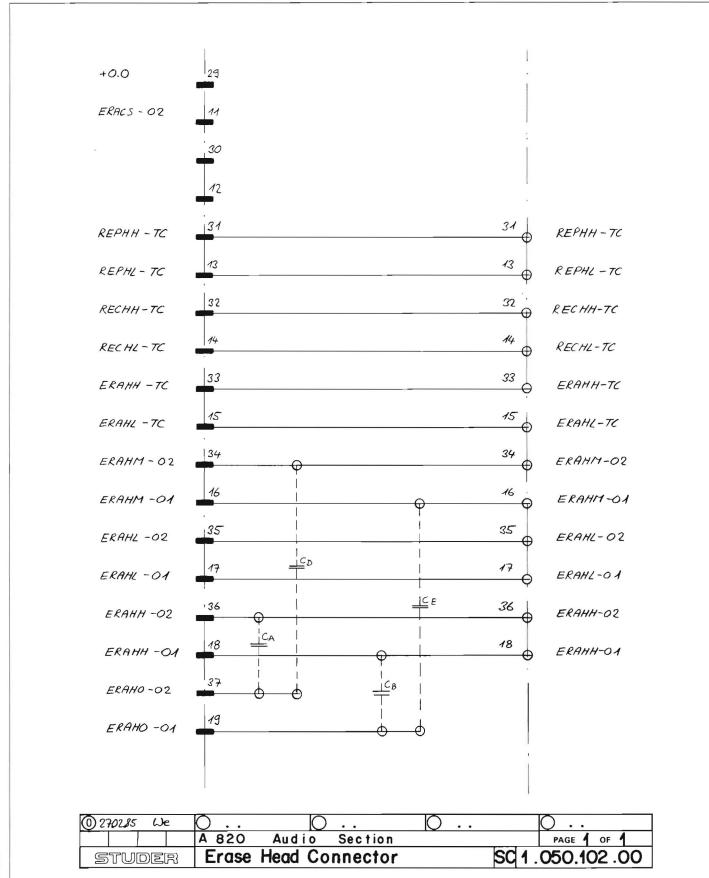
HF DRIVER

HF DRIVER PCB "ESE" 1.820.713.00 GRP 21/ELM 42,47

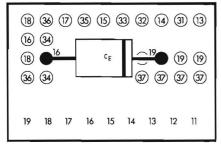


|              | PO5.NO.  | PART MG.   | PALUE   | SPECIFICATIONS / EQUIVALENT  | MANUF.   | 100.         | P03.N0.  | FART NO.   | VALUE   | SPECIFICATION / CONTACTOR  | 444           |
|--------------|--|--|---|--|--|--------------|--|--|---|--|---------------|
| (02)<br>(03) | C  | 59,99,0205 94,97,0205 94,12,97,225 94,12,97,225 94,12,97,225 94,12,97,235 94,12,97,235 94,12,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235 94,13,97,235  | ## OF ST  | -50%. Ce -10%. Ce -10%. Ce -10%. Ce -10%. Ce -10%. Ce -10%. Ce -20%. Ce -20   | Pri<br>Pri   | (97)<br>(21) | * - 001e<br>* - 001e<br>* - 0020<br>* - 0021<br>* - 0021<br>* - 0021<br>* - 0021<br>* - 0022<br>* - 0034<br>* - 00 | 57.11.021<br>57.11.021<br>57.11.027<br>57.11.027<br>57.11.027<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025<br>57.11.025 | 27 kDm<br>8-2 kDm<br>4-7 kDm<br>4-7 kDm<br>100 kDm | 25   |               |
|              | C. 00270<br>C. 00271<br>D. 00027<br>O. 00027<br>O. 0003<br>D. 0003<br>O. 0003<br>D. 0003<br>D. 0003<br>D. 0004<br>D. 0004<br>D. 0011<br>D. 0011  | 30.26.2640<br>30.26.1125<br>30.04.1125<br>30.04.1125<br>30.04.1125<br>30.04.1125<br>30.04.1125<br>30.04.1125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125<br>30.04.0125   | 50 mt 50 v f 50 v f 10   | 20% - 6-19 - 6-1020% - Ce -20% -   | III abn. bes. II   |              | K. 003 N<br>K. 003 N<br>K. 004 | 31.01.753<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03<br>97.11.4.03  | 10 kDms 34 kDms 20 kDms 20 kDms 10 kDms 10 kDms 10 kDms 10 kDms 10 kDms 11 kDm  | ## ## ## ## ## ## ## ## ## ## ## ## ##   |               |
| r is         | D E R (0)  | ti Blyovyos Bat  | HF - 1041   | VER 1.820.7  | 13-00 PaGE   | 4.19         | a + 4. 10  | off elyphyon mul   | 96 - 04)  | VF K   . 870   | 0-113-00 PAGE |
| NO.          | PO).NO.  | Paki MG.   | YALUE   | SPECIFICATIONS / TOUTVALENT  | MANUF.   | ian.         | F75.NO.  | P4K) NO.   | VALUE   | SPECIFICATIONS / EUUIVALEN   | Малу          |
|              | 0.0015<br>0.0016<br>0.0017<br>0.0018<br>0.0019<br>0.0019<br>0.0021<br>0.0024<br>0.0025<br>0.0024<br>0.0025<br>0.0026<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0.0028<br>0. 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BAY20<br>BAY20<br>BAY20<br>INCACH<br>BAY20<br>BAY20<br>BAY20<br>INCACH<br>BAY20<br>INCACH<br>BAY20<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INCACH<br>INC | (MALE)   |  |              | N - 0054<br>N - 0055<br>N - 0055<br>N - 0057<br>N - 0058<br>N - 0064<br>N - 0065<br>N - 00 | 9-11-4021 9-11-12-12 9-11-12-12 9-11-12-12 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13 9-11-12-13   | 620 Den<br>120 Over<br>9-1 Nove<br>9-1 Nove<br>690 Over<br>690 Over<br>690 Over<br>120 Den<br>120 Den<br>120 Over<br>120 Alber<br>120 Alber   | 71 71 71 64 64 71 71 71 71 71 71 71 71 71 71 71 71 71                                  |               |
|              | 0.0036<br>0.0017<br>1C.0001<br>1C.0002<br>1C.0003<br>1C.0004<br>1C.0005<br>1C.0007<br>1C.0008<br>1C.0008<br>1C.0008<br>1C.0008<br>1C.0008  | 50.01122<br>50.01122<br>50.01.0002<br>50.05.0002<br>50.05.00113<br>50.05.0215<br>50.05.0285<br>50.05.0285<br>50.05.0285<br>50.05.0285<br>50.05.0285<br>50.05.0285  | 18 % Z<br>18 % Z<br>HR74C 374N<br>A97524 JN<br>5N754637<br>U4781 LAWE<br>LM3584<br>LM393<br>LM393<br>LM3584<br>SN754627   | #2486C 18. #2459C 18. #F 18<br>##755CM;<br>##755CM;<br>##755CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM;<br>##756CM | 117.500<br>  117.500<br>  M5<br>  ADI = mp5<br>  11.500<br>  F. 65.00<br>  M05.45.11<br>  M5.11<br>  M5.11   | स्यो         | 10001<br>10001   | 1.027.213.00<br>1.027.211.00<br>54.72.0320   |   | Erase fransformer, 150km;<br>Desper fransformer, 150km;<br>lost-Pin Lupot-Nr. 1104 / 3 | n t           |
| τų           | K0001  | 36.04.0171<br>21 81/09/05 807  | 24 DTDTS  |  | 111<br>113.50 PAGE 2   | 5 <b>T</b> 0 | 3 t K (1)  | oży wsydwych mor   | MF - 081  | wisk (-82)   | 0.713.00 PAGE |
| ю.           | POLING   | FART NO.   | VALUE   | SPECIFICATIONS / EQUIVALENT  | Haruji .   | 180          | e0. e0   | PART NO.   | u   | SPECIFICATIONS / EQUIVALEN   |               |
|              | L0001  | 07-31-0125   | 1 #   | Gowanda 15-104 or Delevan 230  |  |              |  |  | VALUE<br>otent i speter   | . Testpoint added (TP I).<br>locareleasing circuit.                                    |               |
|              | F 0001   | 1-022-197-00   | 1-5 mm<br>1-5 mm  | APP Mini Match System, Nr. 16  | 5t   |              |  |  |   |  |               |
|              | 0.0001<br>0.0002<br>0.0003<br>0.0005<br>0.0005<br>0.0005<br>0.0005<br>0.0008<br>0.0008<br>0.0008<br>0.0011<br>0.0011   | 50.81.3124<br>50.81.3124<br>50.81.3124<br>50.82.3741<br>50.82.3741<br>50.01.251<br>50.01.251<br>50.01.261<br>50.01.261<br>50.01.263<br>50.01.263<br>50.01.263<br>50.01.263<br>50.01.263  | P122#E<br>P122#E<br>242##5<br>242##5<br>242##6<br>8C317#<br>6C237#<br>5C237#<br>6C237#<br>6C237#<br>6C237#<br>6C237#<br>6C237#  | #** 1.50 #** 1.00 #** 1.20 *** 1.00 #** 1.20 ***   | TS-Se TS-Se Not-SSG No | Cerces       | emic. \$115  | ometgr. Bourns-<br>vill-re. Spectro lectrolytic. PP 21-shalog Sexte-<br>centemothers. Not<br>Compone blectr<br>primitings. Nest's<br>grigostics. Se<br>gridostypes Semicial<br>primitings. Semicial<br>primitings.   | Palipropyle   | ed- 401 201  oe. Salfyalld aluminum archild. [IT-Inharmetall., gc.**scrapeuer demicond |               |
|              | # - 0001<br># - 0002<br># - 0003<br># - 0005<br>- 0005<br>- 0006<br># - 0007<br># - 0008<br># - 0018<br># - 0018<br># - 0018   | 57.11.507<br>57.11.5181<br>57.11.5181<br>57.13.5181<br>57.13.5181<br>57.11.5181<br>57.11.5181<br>57.11.5181<br>57.11.5181<br>57.11.5181<br>57.11.5185<br>57.11.5185<br>57.11.5185<br>57.11.5185  | 4.7 ± Ohn<br>180 Ohn<br>1 ± Ohn<br>100 Ohn<br>100 Ohn<br>100 Ohn<br>10 ± Ohn<br>10 ± Ohn<br>10 ± Ohn<br>10 ± Ohn<br>10 ± Ohn<br>22 ± Ohn<br>22 ± Ohn<br>21 ± Ohn<br>1 ± Ohn<br>1 ± Ohn<br>1 ± Ohn<br>1 ± Ohn  | 8 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4  |  |              |  |  |   |  |               |
|              | #0014<br>#0012<br>#0013<br>#0014<br>#0014<br>#0014   | 57.11.4104<br>57.11.4223<br>57.11.3913<br>57.11.4337<br>57.11.4337<br>57.11.4341<br>57.11.4363   | 22 ACMs<br>91 ACMs<br>1 ACMs<br>1 ACMs<br>5.5 ACMs<br>50 ACMs   | 2t<br>11<br>21<br>21<br>21   |  |              |  | (01) #1/06/21  |   |  |               |

ERASE HEAD CONNECTION PCB 1.050.102.00 GRP 60/ELM 01



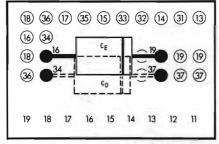
### ERASE HEAD CONNECTION PCB 1.050.102.00 GRP 60/ELM 01



2 x ORIGINAL SIZE

- FOR A820 MONO VERSIONS AND STEREO VERSIONS WITHOUT VU-METERS (A820-1, A820-1 VU, A820-0.75, A820-2 F)

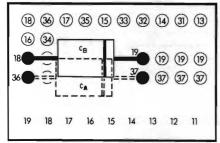
| POS.NO.        | PART NO.   | VALUE  | SPECIFICATIONS | CONNECTED TO | PIN NO. 11<br>GROUNDED |
|----------------|------------|--------|----------------|--------------|------------------------|
| c <sub>E</sub> | 59.04.9332 | 3.3 nF | 5 %, 630 V, PP | Points 16/19 | YES                    |



2 x ORIGINAL SIZE

- FOR AB2O STEREO VERSION WITH VU-METERS, 2-CHANNEL VERSIONS, AND 2-CHANNEL VERSIONS WITH TIME CODE (AB20-0.75 VU, AB20-2, AB20-2 VU, AB20-2/2 VU, AB20-2 TC, AB20-2 TC VU)

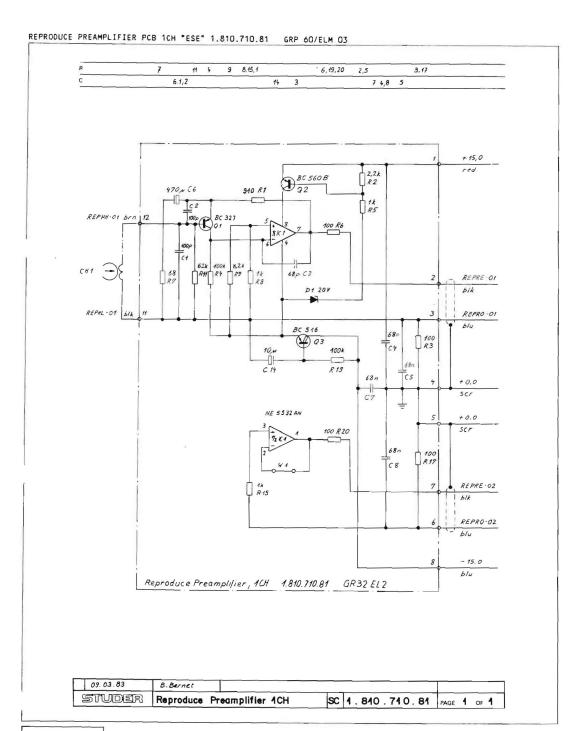
| POS.NO.  | PART NO.   | VALUE  | SPECIFICATIONS | CONNECTED TO | PIN NO. 11<br>GROUNDED |
|----------|------------|--------|----------------|--------------|------------------------|
| CD       | 59.04.9332 | 3.3 nF | 5 %, 630 V, PP | Points 34/37 | NO                     |
| c€<br>CD | 59.04.9332 | 3.3 nf | 5 %, 630 V, PP | Points 16/19 |                        |

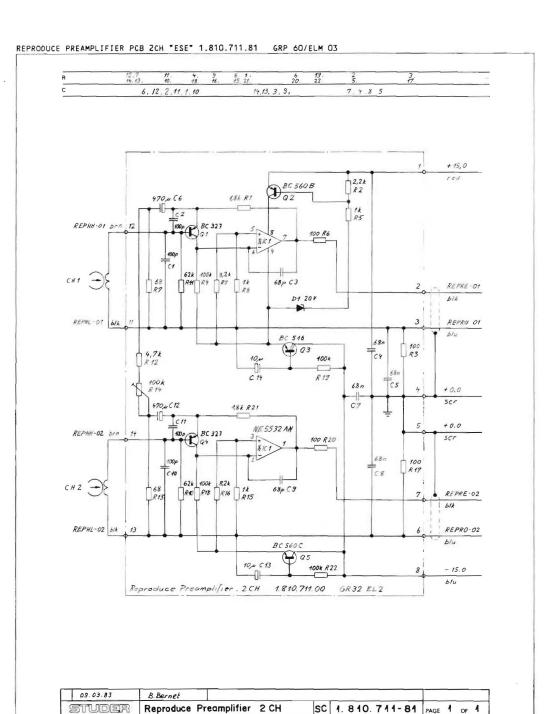


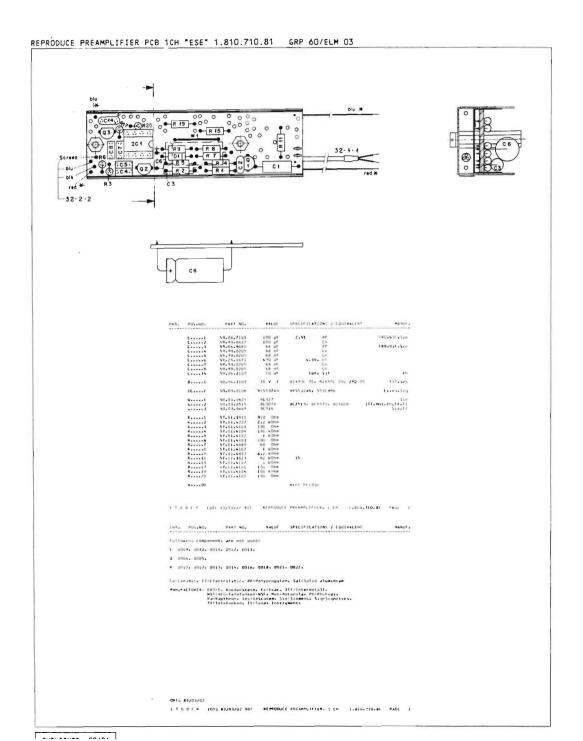
2 x ORIGINAL SIZE

- FOR A820 1/2" 2-CHANNEL VERSIONS (A820-2/2-1/2" VU, A820-2/2-1/2" TC VU

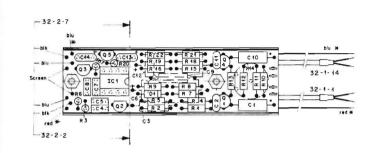
| POS.NO.        | PART NO.   | VALUE  | SPECIFICATIONS | CONNECTED TO | GROUNDED |
|----------------|------------|--------|----------------|--------------|----------|
| C <sub>A</sub> | 59.04.9271 | 270 pF | 5 X, 630 V, PP | Points 36/37 | NO       |
| C <sub>B</sub> | 59.04.9271 | 270 pF | 5 X, 630 V, PP | Points 18/19 |          |



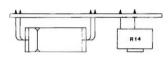




#### REPRODUCE PREAMPLIFIER PCB 2CH "ESE" 1.810.711.81 GRP 60/ELM 03







| MANUS              | FULLVALENT  | ONS /   | ICAT I |          |        | YAL          |      | NO.    | FART     | I+-NO. | 195. |
|--------------------|-------------|---------|--------|----------|--------|--------------|------|--------|----------|--------|------|
|                    |             | 90      |        | 2.58     | 21.5   | 100          |      | 7101   | 59.04.   |        |      |
|                    |             | Co      |        |          | 10.5   | 100          |      | 0622   | 39.95.   |        |      |
|                    |             | \$100   |        |          | 15.0   | 6.8          |      | 9680   | 59.04.   | .0071  |      |
|                    |             | 2.00    |        |          |        | 48           |      | 0205   | 59.99.   | +000+  |      |
|                    |             | Ce      |        |          | rsf.   | 4.0          |      | 0.005  | 59.99.1  | 0035   |      |
|                    |             | 61      | )v.    |          | 46     | 4.70         |      | 1471   | 59.25.   | .0004  |      |
|                    |             | C=      |        |          | mi     | -6           |      | 0705   | 59.29.   | 1000.  |      |
|                    |             | 60      |        |          | reti   | 4.0          |      | 0.70%  | 59.99.   | 000#   |      |
|                    |             | 20      |        |          | 20.0   | n.it         |      | Vello  | 59.00-   | .0009  |      |
|                    |             | PIR     |        | 1.52     | 100    | 100          |      | 7101   | 39.00.   | 0010   |      |
|                    |             | Cu.     |        |          | DF     | 100          |      | 06.22  | 59.79.1  | 1100.  |      |
|                    |             | 101     | hv.    |          | 14.0   | .70          |      | 1475   | 39.25-   | -0012  |      |
| FR                 |             | SAF     | Inv.   |          | 100    | 10           |      | 2100   | 59.20.   | 0013   |      |
| Ph.                |             | 545     | lav.   |          | uf     | 10           |      | 2100   | \$9.20-  | 001.   |      |
| I I Tables         | C 20. 200 2 | B2155C  | jn.    | SIXBAC   | 2      | ٧            | 20   | 1104   | \$0.04.  | .9001  |      |
| £ 4. 8 4. 5 19     | e           | 532 AND | AN. 1  | 1855 324 |        | 532          | 4635 | 0100   | 50.00.   | .0001  |      |
| Sie                |             |         |        |          |        | 127          | 86   | 0425   | 30.03el  | 1000.  |      |
| ITL. MOE. PROTECTS | 865668      | 5 m. bt | . BCS  | BC2539.  | 3      | to fr        | BC:  | 3515   | 50-01-   | .0001  |      |
| \$1-,11            |             |         |        |          |        | 514          | BCT  | 0449   | 10.03.0  | . 0001 |      |
| 110                |             |         |        |          |        | 527          | 34   | 0525   | 50-93-0  | -800+  |      |
| Mec . Ph. 51 . 1/  |             |         |        |          | ٤      | \$60         | 80   | 0476   | 30.03.   | .0005  |      |
|                    |             |         |        |          |        |              | 1.0  |        | 57-11-   | .0001  |      |
|                    |             |         |        |          | 100    | KO           | 2.2  |        | 57-11-   | 0002   |      |
|                    |             |         |        |          | Tree.  | - b          | 001  |        | 57-11-   | 0003   |      |
|                    |             |         |        |          | nds.   | NO           | 100  |        | 57-11-   |        |      |
|                    |             |         |        |          | No.    | <b>X</b> O   | 1    |        | 57-11-   | .8005  |      |
|                    |             |         |        |          | No.    | 0            | 100  |        | \$7.11.  | .0006  |      |
|                    |             |         |        |          | ne.    | O            | 6.6  |        | 57-11-4  | .0007  |      |
|                    |             |         |        |          | 100    | kC           | 1    |        | 57.11.   | 0006   |      |
|                    |             |         |        |          | -      | XO           | 8.2  | 5550   | 57.11.   | .0009  |      |
|                    |             |         |        | 12       | ne.    | 10           | 62   |        | 57.11.   | .0010  |      |
|                    |             |         |        | 12       |        | <b>A</b> (2) |      |        | 51.11.   | .0011  |      |
|                    |             |         |        |          |        | *0           | 4.7  | 4472   | 57-11-   | -0012  |      |
| 711.61 PAGE        | CH 1.810    | a. 2 C  |        | PREAMP   | sout ( | FRI          |      | 92 867 | 1 43/03/ | . 10   | 2 1  |

| MANUF | SPECIFICATIONS / EQUIVALENT | VALUE  |       | PART NO.   | P05.NO. | 140. |
|-------|-----------------------------|--------|-------|------------|---------|------|
|       |                             | Oh-    | 84    | 57-11-4680 | 40013   |      |
|       | See note !                  | a.Chu  | 1.00  | 58-01-4104 | R 0014  |      |
|       |                             | A.Ohie |       | 57.11.4102 | 80015   |      |
|       |                             | ACRES. | 8 - 2 | 57.11.6822 | 2OG1e   |      |
|       |                             | Dito   | 100   | 37-11-4101 | 90017   |      |
|       |                             | *One   |       | 57-11-4104 | 4001#   |      |
|       |                             | NOne:  | 100   | 57-11-4104 | 20019   |      |
|       |                             | City.  | 1.00  | 57-11-4101 | R 0020  |      |
|       |                             | x0he   | 1 - 0 | 57.11.4152 | 40021   |      |
|       |                             | NONe.  | 1.00  | 57-11-4104 | 20032   |      |

Nute 1 - 100 kOhe Potentiometer \*log. 10% Allem Bradley Nr. 18 104 A

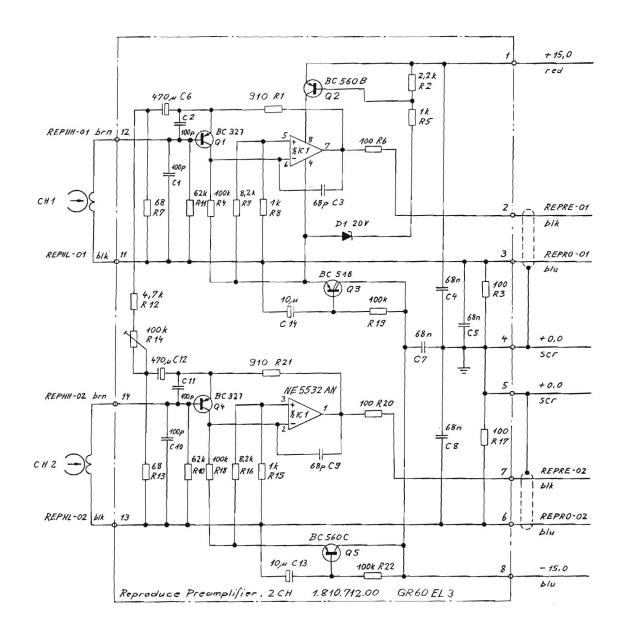
Columnatic. Elittectrolytics. PP-Polypropylen. Sale-Solid alumnium ManufaClumfi: Exchaer. Ilfrinterentall. MotrAutorola. Phi-Philips. Sarbaythom. Seviescosem. Sarbiamens. Signisiquetics. Ilfralatumen. Ilfries Instrument

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\$ 1 0 0 0 0 0 1000 BByOS/S2 BBI AFPRODUCE PREAMPLIFIER: 7 CH 1-810-731-01 P+GL Z

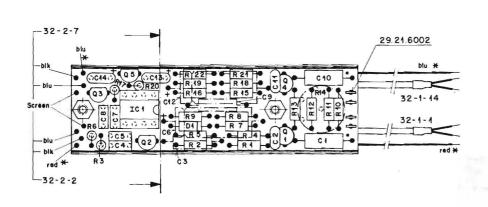
## REPRODUCE PREAMPLIFIER PCB 2CH 1/2" "ESE" 1.810.712.00 GRP 60/ELM 03

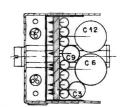
|   |                |        |      | _  | _                    |      |     |          |           |  |
|---|----------------|--------|------|----|----------------------|------|-----|----------|-----------|--|
| R | 12.7<br>14.13. | 11.    | 4.   | 9. | 8 . 1 .<br>15 . 21 . | 20.  | 19, | 2.<br>5, | 3,<br>17, |  |
| С | 6.1            | 2.2.11 | 1,10 |    | 14,13                | 3,9, |     | 7, 4,8,5 |           |  |

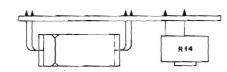


| 12.7.85 | Gä           | A 820 Audio Section                        | Part of | GR 60 |
|---------|--------------|--|---------|-------|
| STUDER  | Reproduce Pi | reamplifier 2 CH/0,5 sc 4. 8 10. 7 12 - 00 | PAGE 1  | OF 4  |

#### REPRODUCE PREAMPLIFIER PCB 2CH 1/2" "ESE" 1.810.712.00 GRP 60/ELM 03







| SPECIFICATIONS / EQUIVALENT            | ON  | FICAT   | SPECI  | ne.       | VAL |     | ART NO. | n. P    | PO5=NO    | ×2. |
|--|-----|---------|--------|-----------|-----|-----|---------|---------|-----------|-----|
|  |     |         |        |           |     |     |         |         |           |     |
| 2.5% PP                                |     |         |        |           | 100 |     | 08.7101 | 01 60   | C 000     |     |
| Ce                                     |     | , .     | 4.     |           | 100 |     | 99.0622 |         | C GOO     |     |
| PP                                     |     |         |        | pF        |     |     | 04.9680 |         | (000      |     |
| Ce                                     |     |         |        |           | 68  |     | 19.0205 |         | L000      |     |
| Ce                                     |     |         |        | nF        |     |     | 79.0205 |         | (000      |     |
| 6.37.63                                |     | 41. 344 |        |           | 470 |     | 25.1471 |         | C 000     |     |
| Ce                                     |     | 0.14    |        | OF        |     |     | 79.0205 |         | (000      |     |
| Ce                                     |     |         |        |           | 68  |     | 99-0205 |         | C 000     |     |
| 99                                     |     |         |        | of        |     |     | 14.9680 |         | C 000     |     |
| 2+54 PP                                |     |         | 2 4    |           | 100 |     | 08.7101 |         | L 001     |     |
| Ce                                     |     |         | 2.     |           | 100 |     | 9.0622  |         | C 001     |     |
| 6V, E1                                 |     |         |        |           | 470 |     | 25.1471 |         | C 001     |     |
| 16V. Sal                               |     |         |        | uf        |     |     | 0.2100  |         | C001      |     |
| 164. 541                               |     |         |        | uf        |     |     | 26-2100 |         | (001      |     |
| 1041 741                               | 3.  | IDA     |        | ur        | 10  |     | .0.2100 | 14 27.  | C         |     |
| BZX83C 20. 8ZX55C 20. ZPD 20 111       | RZ  | C 50.   | BZX8   | 2         | ٧   | 20  | 04.1109 | 101 50. | 0000      |     |
| XRSS3ZAN. SS3ZANB EX.RA                | 553 | ZAN.    | XR55   | AN        | 532 | NES | 9.0106  | 01 50.  | 10.000    |     |
|  |     |         |        |           | 327 | ac  | 3.0625  | 01 50.  | L000      |     |
| BC2519, BC5578, BC5608 ITT. Mot. Ph. T | 557 | 19. BC  | BC 251 | 8         | 307 |     | 03-0515 |         | C000      |     |
| Si                                     |     |         |        |           | 516 | BC. | 3.0448  | 03 50.  | C 000     |     |
|  |     |         |        |           | 327 |     | 3.0625  |         | 0000      |     |
| Mot .Ph. Si                            |     |         |        | C         | 560 |     | 3.0496  |         | U000      |     |
|  |     |         |        |           | -   |     | 11.3911 |         | 8000      |     |
|  |     |         |        |           |     | 910 | 11.4222 |         | K000      |     |
|  |     |         |        | n on      |     | 100 | 11.4222 |         | R000      |     |
|  |     |         |        |           |     | 100 | 11.4104 |         | R000      |     |
|  |     |         |        |           | KO  |     | 11.4104 |         | R 000     |     |
|  |     |         |        | Dien.     |     | 100 | 11.4101 |         | K 000     |     |
|  |     |         |        | nm<br>met |     | 68  | 11.4680 |         | H 000     |     |
|  |     |         |        |           |     | 08  | 11.4102 |         | K = - 000 |     |
|  |     |         |        |           |     |     |         |         | H 000     |     |
|  |     |         |        |           | kO  |     | 11.4822 |         | R001      |     |
| 11                                     |     |         |        |           | KO  |     | 11.3623 |         | R == 001  |     |
| 11                                     |     |         | 14     |           |     |     |         |         |           |     |
|  |     |         |        | 1187      | KO  | 4.7 | 11.4472 | 12 57.  | R001      |     |

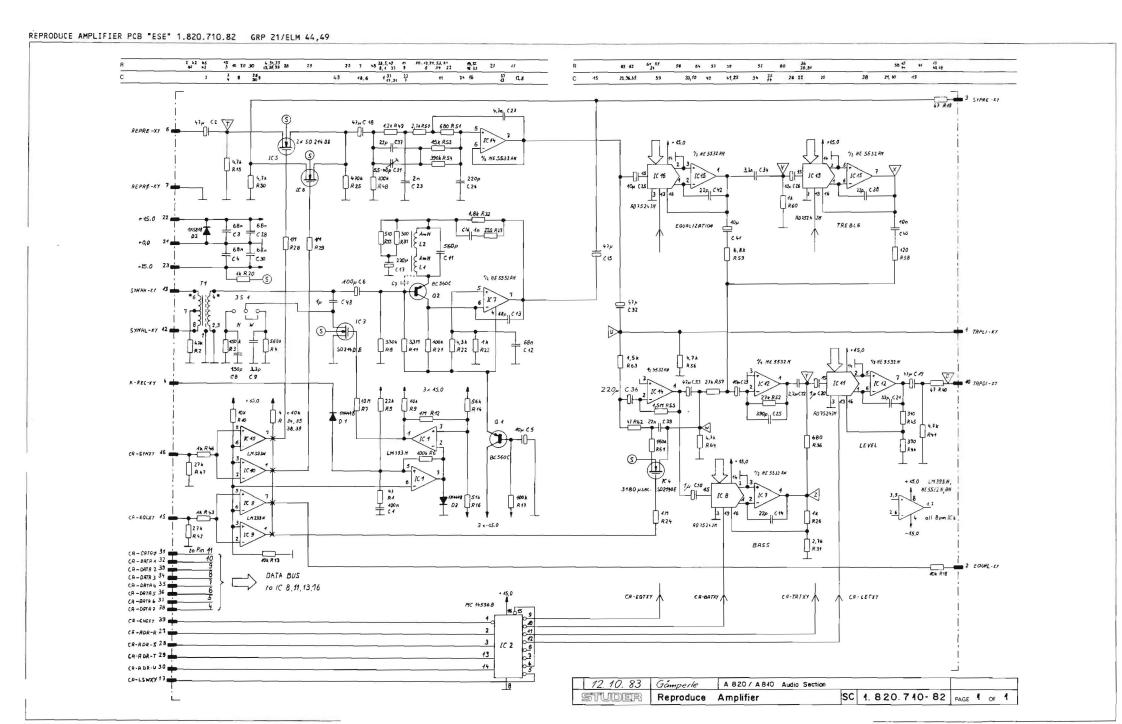
| NO. | POS-NO- | PART NO.   | VALUE    | SPECIFICATIONS / EQUIVALENT | MANUF |
|-----|---------|------------|----------|-----------------------------|-------|
|     | R0013   | 57-11-4680 | 68 Ohm   |                             |       |
|     | R 0014  | 58-01-4104 | 100 kOhm | See note 1                  |       |
|     | A GO15  | 57-11-4102 | 1 kOhm   |                             |       |
|     | R 0016  | 57-11-4822 | B.2 kOhm |                             |       |
|     | R 0017  | 57-11-4101 | 100 Chm  |                             |       |
|     | R0018   | 57-11-4104 | 100 kOhm |                             |       |
|     | R0019   | 57-11-4104 | 100 kOhm |                             |       |
|     | B 0020  | 57-11-4101 | 100 Ohm  |                             |       |
|     | R 0021  | 57-11-3911 | 910 Ohm  |                             |       |
|     | R0022   | 57-11-4104 | 100 kOnm |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |
|     |         |            |          |                             |       |

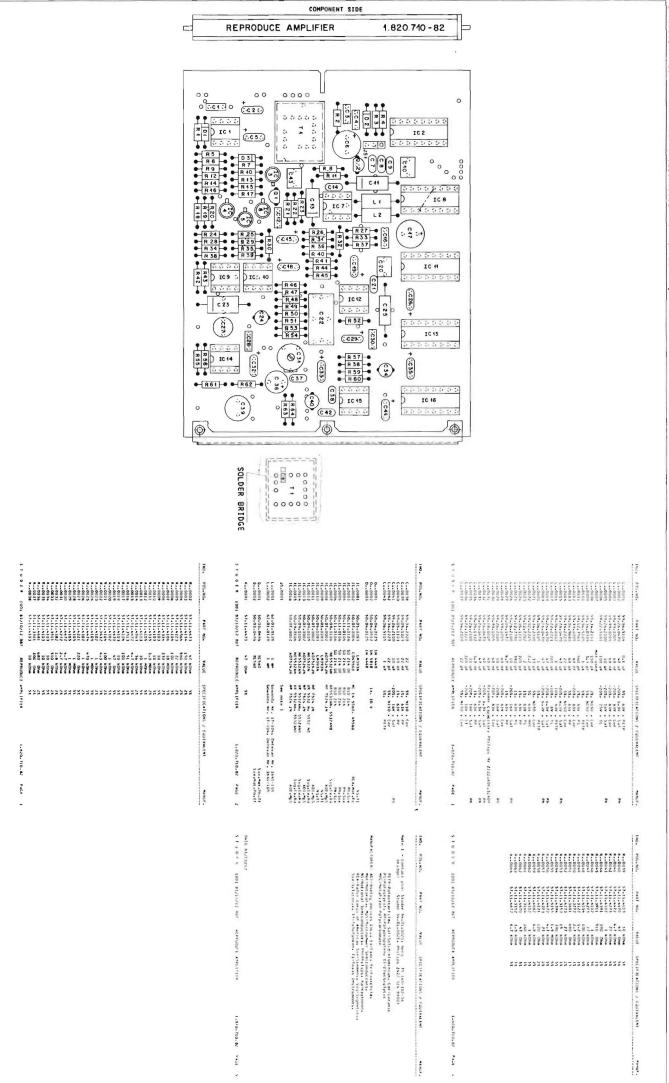
Note 1 - 100 kOhm Potentiometer +log. 10% Allen Bradley Nr. YR 104 A

MANUFACTURER: Ex=Exar. ITT=Intermetall. Mot=Motorola. Ph=Philips: Ra=Raythmon. Sex=Sexcosem, Sies Siemens. Sig=Signetics. ft=ftelefunken, ItT=Fexas Instruments

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S T U D E R (0P) 85/01/30 GAE REPRO PREAMPL. ZCH/0.52

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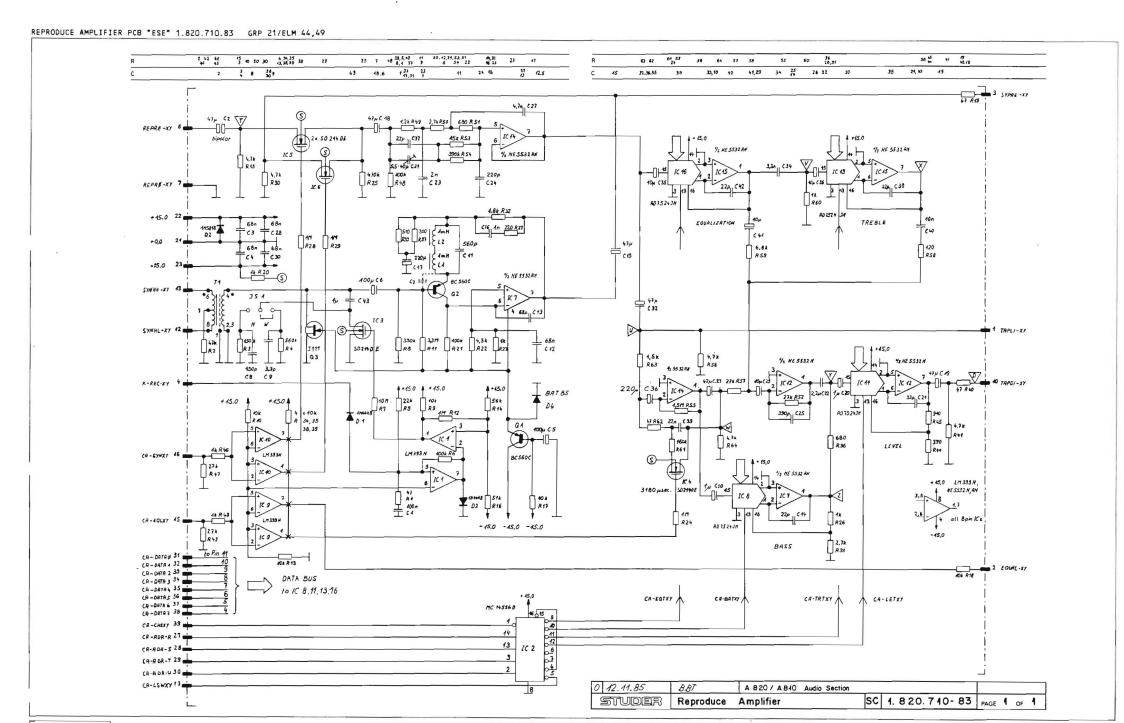


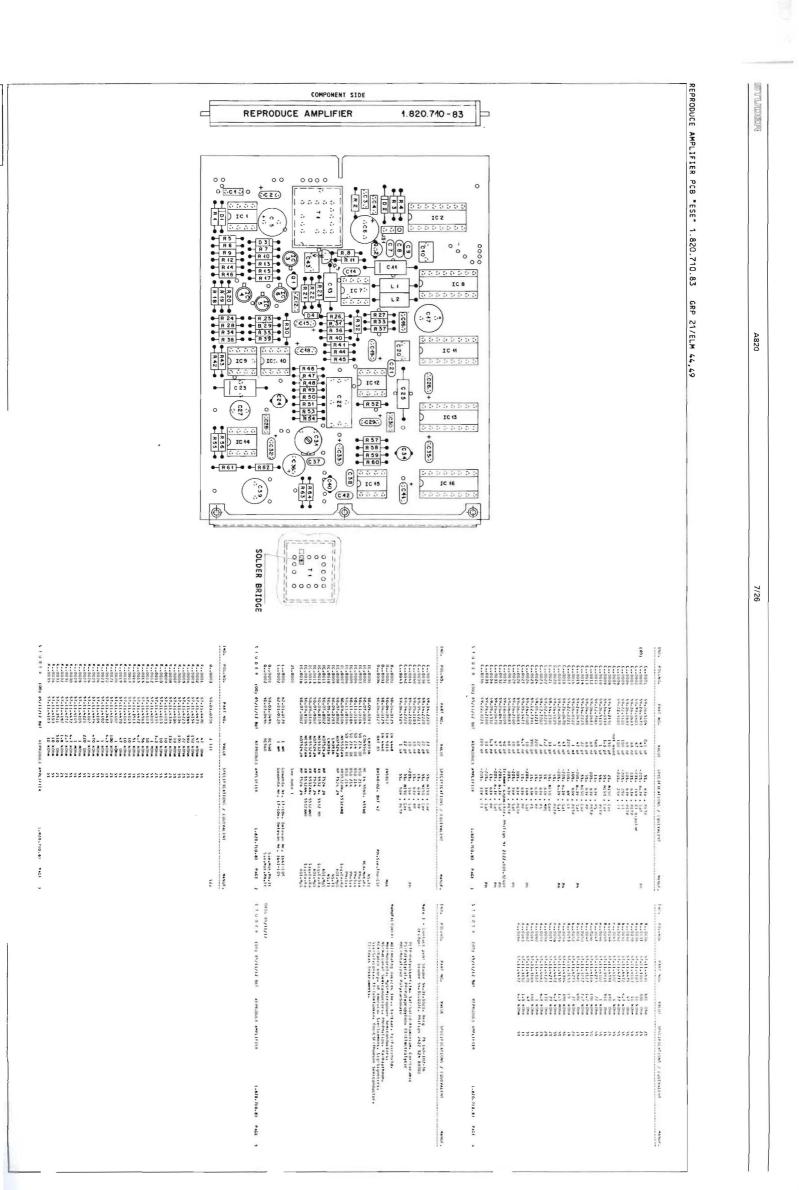


REPRODUCE AMPLIFIER PCB "ESE" 1.820.710.82 GRP 21/ELM 44,49

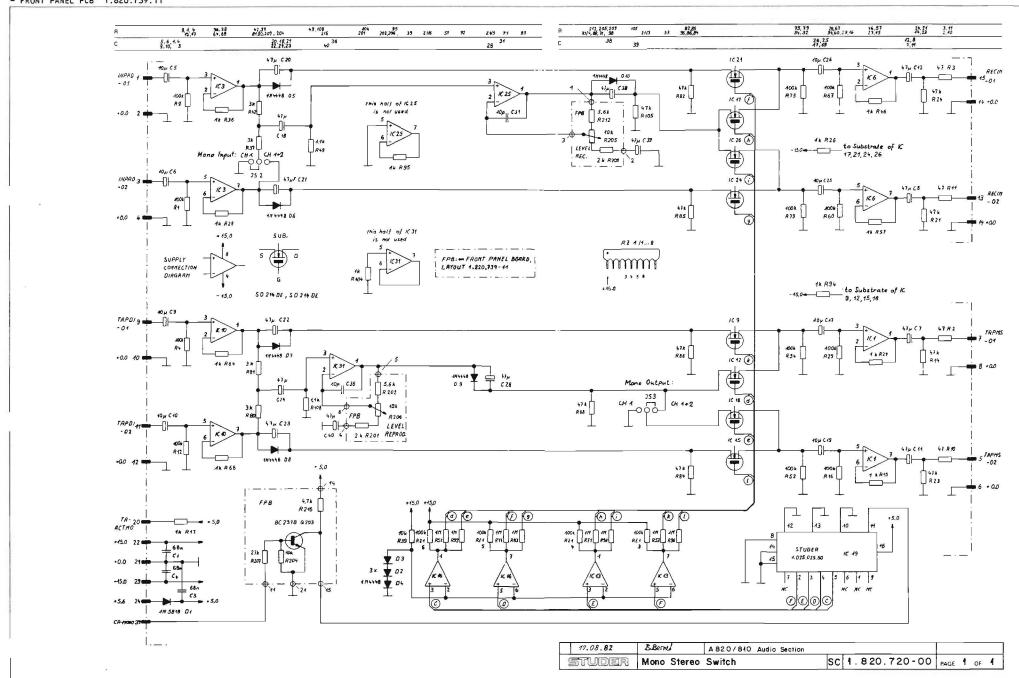
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A820





## MONO/STEREO SWITCH PCB "ESE" 1.820.720.00 GRP 21/ELM 46 - FRONT PANEL PCB 1.820.739.11



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MONO/STEREO SWITCH

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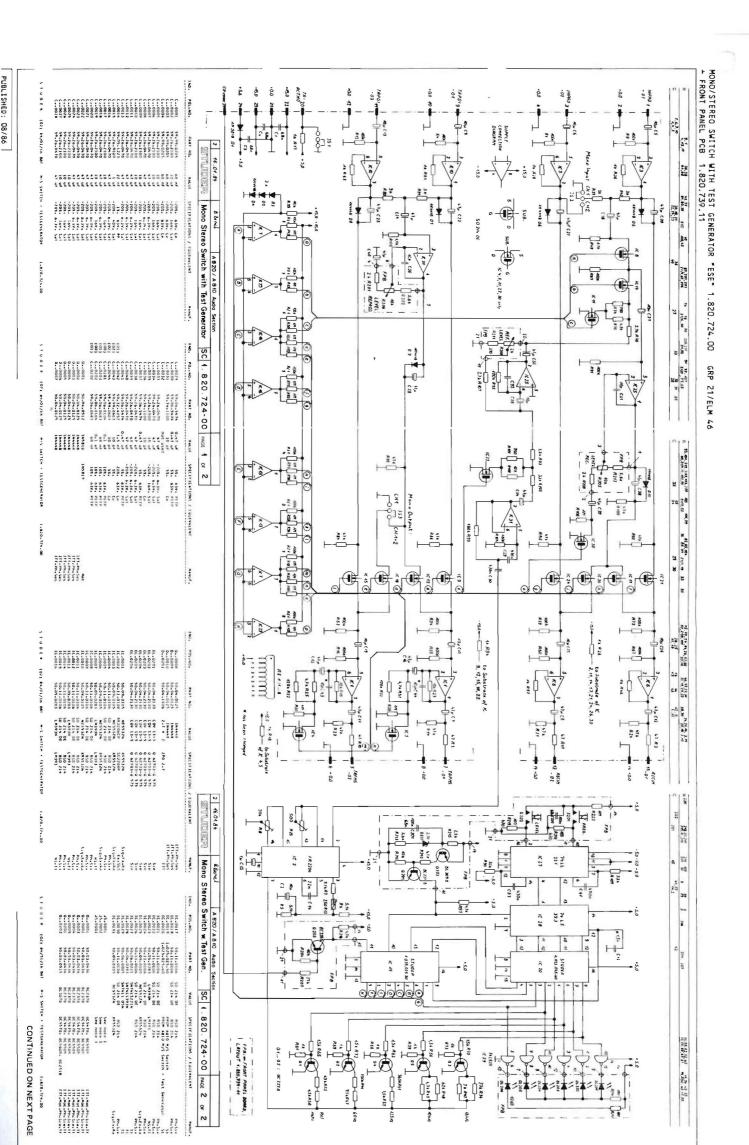
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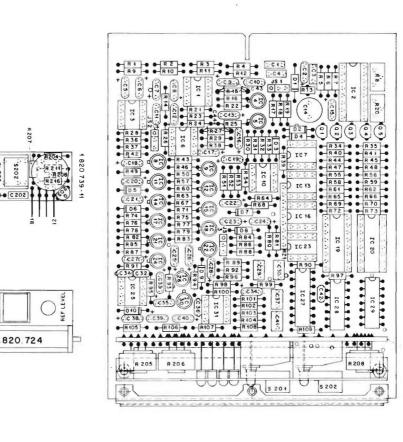


A820

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MONO/STEREO SWITCH WITH TEST GENERATOR "ESE" 1.820.724.00 - FRONT PANEL PCB 1.820.739.11 GRP 21/ELM

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SPECIFICATIONS / EQUIVALENT

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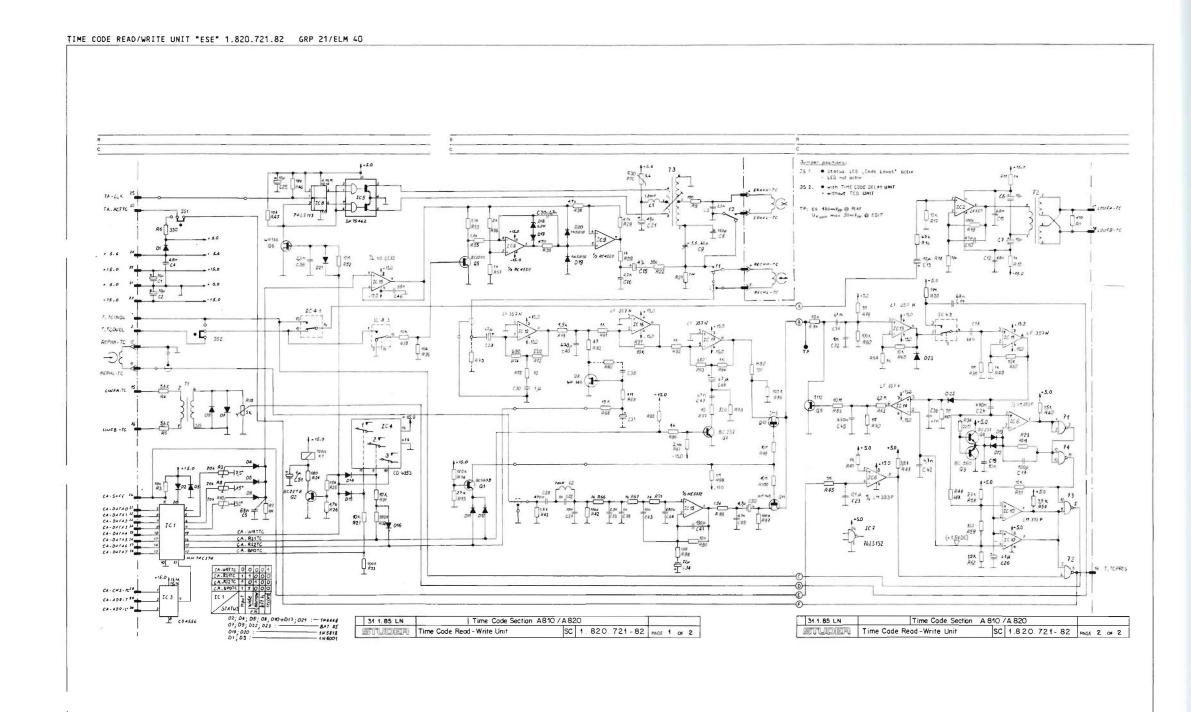
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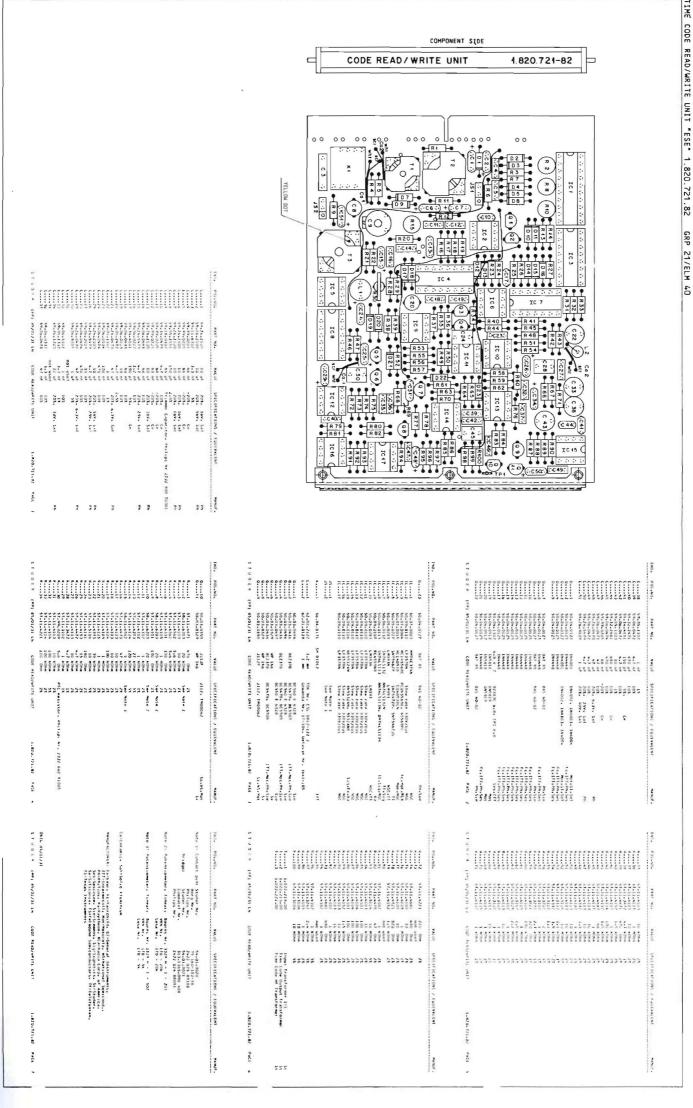
|  | PART NO. NALUT | where setting / passesses          | ENT MANUE.                   | 140  | PUS-NO.   | IND. POLING. PART NO. VALUE | ANTIN        | SHELIFICATION / (DUIVALINT MANUE. | STANK |
|--|----------------|------------------------------------|------------------------------|------|-----------|-----------------------------|--------------|-----------------------------------|-------|
|  | 1.0538 8C7178  | 0.04 PA . NC 5505                  | 1 17 . wast . Pro. 5; pp. 77 |      | 1070      | \$7.17.3202                 | 2 vOt-       |                                   |       |
|  |                |                                    |                              |      | 20,000    | 57-11-4567                  | 5 x 0ma      | 22                                |       |
|  | 100            | **                                 |                              |      | 40203     | 37.11.4101                  | 10 ×0ne      | 51                                |       |
|  |                | **                                 |                              |      | 1204      | 37-11101                    | 10 1075      | 11                                |       |
|  |                | 37                                 |                              |      | 0.000     | 1015-10-95                  | 10 kOne      | See moter 4                       |       |
|  | 100            | 52                                 |                              |      | 2         | 1016-10-85                  | 10 1074      | Sep Sate 4                        |       |
|  | 5.1            |                                    |                              |      | 10702     | 57.11.4271                  | 27 Allena    |                                   |       |
|  |                | 5                                  |                              |      | # - G2 G# | 107.10.65                   | 2 KONW       | See note 5                        |       |
|  | _              | 17                                 |                              |      | WO. G9    | 1021-1124                   | Z kOna       | 11                                |       |
|  |                | 3 0 100 mar                        |                              |      | 01.00     | 37.11.4472                  | Suff Address | 16                                |       |
| Column   C   |                | 3.5                                |                              |      | 4 7211    | \$1.11101                   | AND DOL      | 24                                |       |
|  |                |                                    |                              |      | 215GT**   | 57-11-1962                  | 5.4 kDus     | 11                                |       |
|  |                | **                                 |                              |      | # OZIJ    | 57.11.636/                  | 5-6 KONA     | 77                                |       |
| Column   C   |                | •                                  |                              |      | ******    | 51.11.488                   | 180 Can      | 31                                |       |
|  | Ī              | the full gives a sensitivities had | 100 fe ces (712 -            |      | ******    | \$7.11.4227                 | And Miller   | 15                                |       |
|  |                | **                                 |                              |      | 40210     | \$7.11.6477                 | *. 7 kOhm    | 51                                |       |
|  |                |                                    |                              |      | 2120.12   | 57.11.4161                  | 180 Ona      | 51                                |       |
| 100    |                | 57                                 |                              | 1001 | #170      | 1014-11-45                  |              | **                                |       |
|  |                | 53                                 |                              | 1011 | ******    | 37.11.4471                  |              | **                                |       |
|  | 7              | 55                                 |                              | (00) | 4110      | 37.11.4101                  |              | 11                                |       |
| 100    |                |                                    |                              | 1011 | E-13219   | 57.11.4671                  | 4.70 ON#     | 31                                |       |
| 52-51-9-5-10-00<br>52-51-9-5-10-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9-00<br>52-51-9- |                | San note 5                         |                              |      | B0.275    | 57.11.4105                  | widths 1     | 27                                |       |
| 120 Mars 120   |                | 57                                 |                              |      |           |                             |              |                                   |       |
| C delle  |                | 57                                 |                              | 1001 | 1000178   | \$7.88.4113                 | 100 ton      | y each and                        |       |
| 52-91-9-55<br>64 94 94 94 94 94<br>70 33 33 33 33 33 33 33 33 33 33 33 33 33   |                | **                                 |                              | 1003 | 10001     | 37.88.4104                  | *UD4 201     | See nate 5                        |       |
|  |                | 5.5                                |                              |      |           |                             |              |                                   |       |
| 1. dille   | ľ              | 5                                  |                              |      | 10705     | 35-15-0501                  | Sw1 11.70    | See nitte 2                       |       |
| 52-91-9-6  |                | **                                 |                              |      | 10707     | 35.13.8501                  | 541517       | Sen nute ?                        |       |
| 77 - 17 - 18 - 18 - 18 - 18 - 18 - 18 -  |                |                                    |                              |      |           |                             |              |                                   |       |
| To a close   |                | 5.2                                |                              |      |           |                             |              |                                   |       |
| 77 - 77 - 70 - 70 - 70 - 70 - 70 - 70 -  |                | 2                                  |                              |      |           |                             |              |                                   |       |
| 27 c76s  |                | 2.5                                |                              |      |           |                             |              |                                   |       |
| 170 ACRes<br>27 ACRes<br>27 ACRes  |                |                                    |                              |      |           |                             |              |                                   |       |
| 27 x 35x   |                | ×,                                 |                              |      |           |                             |              |                                   |       |
| 27 x 35xx  |                | 5                                  |                              |      |           |                             |              |                                   |       |
| Tab william  |                | 23                                 |                              |      |           |                             |              |                                   |       |
|  |                |                                    |                              |      |           |                             |              |                                   |       |

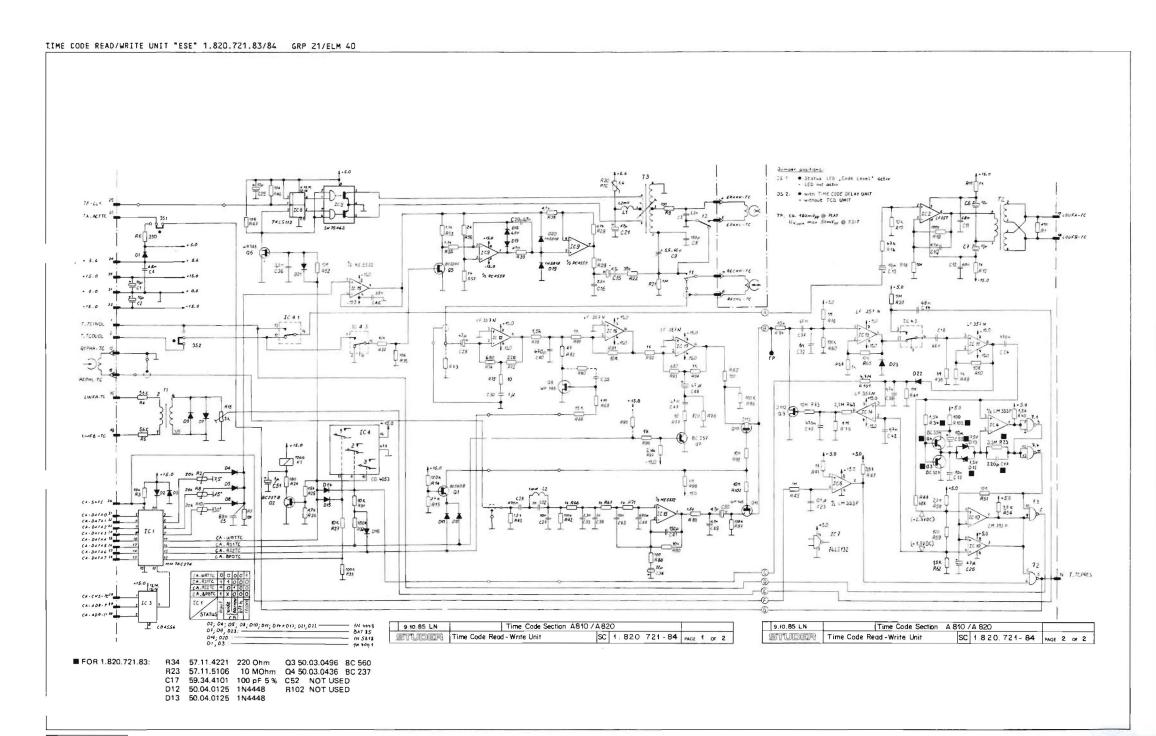




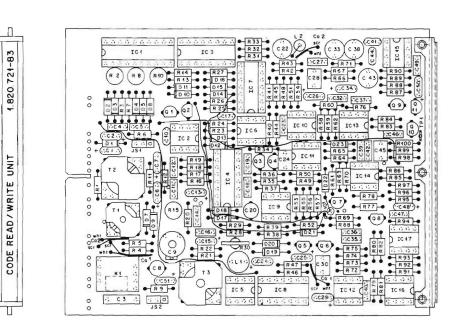
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TIME CODE READ/WRITE UNIT "ESE" 1.820.721.83 GRP 21/ELM 40



| 100. 90 | Sa. 145. | PAST NO.    | VALUE      | SPECIFICATIONS / EQUIVA  | CENT MANUF.       | IND. FOLING. | PART NO.     | VALUE       | SPECIFICATE   |
|---------|----------|-------------|------------|--------------------------|-------------------|--------------|--------------|-------------|---------------|
| D.      | 2)       | 10.04.0127  | BAT ES     | 945 40-02                | Phisie            | *******      | 37-11-42/1   | 220 One     | 21            |
|         |          |             |            |                          |                   | E 73         |              | not wand    | •             |
| 10      |          | 10.07.0001  | MMT45 374M |                          | 208               | 814          | 57-11-4001   | and One     | 23            |
| 15      | *****    | 90.00.0110  | LF3576w    | Siew rate 23072185       | NSC               | A 19         | \$1.11.4100  | 10 One      | 23            |
| 10      |          | 50-07-0005  | MC1455ARC  | PCO4350HE - 4550HPC      | FC . MOT . HC A   | # / p        | 57-11-4105   | 1 HObs      | 43            |
|         |          | 50.07.0015  | MC140118   | C040538CN                | Mot . NSC         | 4 77         | 57.11.4100   | 10 One      | 21            |
| 10      |          | 50.05.0227  | SN7546JP   | 1875472P. 587546716      | 11                | S 18         | 57.11.4821   | SZG Gom     | 41            |
| 10      |          | 50.25.0285  | L # 393N   | L M395                   | MSC . TI          | Sec. 19      |              | L-1 some    | /1            |
| 10      | 1        | 10.00.011/  | SN7415132  | MATELSESEN               | TIASIU            | 8            |              | not used    |               |
| 10      |          | 20-04-0113  | SM741.5113 | NATALSTEIN. DATALSTEIN   | fl-Sig-NSC        | *******      | 57.11.5102   | 1 kOne      | 42            |
| 10      |          | 50.09.0107  | RE4559NB   |                          | Ra                | A 82         |              | +7 Dove     | 22            |
|         | 10       | 50.05.0241  | F#1474     | LMST)                    | NSC . TI          | A 63         | \$7.11.5100  | 10 HDom     | 21            |
| 10      | 11       | 50.09.0110  | L# 2578m   | Sies rate >30v/lus       | MSC               | ******94     | 57-11-4123   | 10 kOne     | 43            |
| 10      | 11       | 50.09.0112  | LF3570N    | Sieu cate 350v/lus       | MSC               | A            |              | 1.00 Don    | 25            |
| 10      |          | 50-04-0110  | LESSION    | ties rate >300/145       | NSC.              | R.z.sfin     | 37-11-5105   | 100 killes  | 23            |
| 10      | 14       | 50.09.0110  | CF 35 79N  | Siew rate >309/195       | NSC               | 8            | 57.11.4104   | 100 killing | 22            |
| 10      |          | 30.07.0105  | MESSIZAR   | X8551244. 5512448        | Segularana        | N 10         | 57-11-4101   | 100 One     | 21            |
| 14      |          | 50.09.0110  | LT157BN    | Siew rate >MW/lus        | NSC               | Sec. 69      |              | 1-5 allhom  | 22            |
| 10      | 11       | 50.09.0110  | LESSIBN    | Siew rate >350/tus       | MST               | R            |              | 10 some     | 21            |
|         |          |             |            |                          |                   | £ 91         | 57-11-1103   | 10 kOhm     | 22            |
| 15      | 51       |             |            | Ser Note 1               |                   | A 9/         | 57-11-4102   | A telline   | 23            |
| JS      | \$ 2     |             |            | San Note 1               |                   | A            |              | allo One    | 23            |
|         |          |             |            |                          |                   | 874          | 57-11-4102   | 1 NOne      | 71            |
|         |          | 50-04-0111  | T# 01012   |                          | 177               | 4 95         |              | Apt used    |               |
|         |          |             |            |                          |                   | 8            | 57-11-4102   | 1 kilne     | 52            |
| ι.      |          | 62-04-2122  | 1.2 mm     | 10s, Ar . CSL 0812-127 3 |                   | 4 97         |              | Zan kome    | 32            |
|         |          | 07-01-0124  | 1 ****     | Cowanda Nr. 11-164. Del  | evan Mr. 1541-105 | 8            |              | 1 etche .   | 12            |
|         |          |             |            |                          |                   | 4 90         |              | 10 million  | 51            |
| v.      |          | \$0.03.0596 |            | BC 560 b = 328           | Sie               | 9 *** 100    | >7-11-5105   | 10 mine     | 51            |
| 4.      |          | 50.03-0438  | BC237B     | AC 5479. HC 5508         | Iff. Mot. Ph. Sie | 8 101        | 57-11-3475   | 4.7 miles   | 53            |
| 4.      |          | 10-03-0494  |            | BC56G £ #32#             | Sie               |              |              |             |               |
|         |          | 30-03-043h  | MC237B     | BC5478 BC55GII           | Iff. Mat. Ph. Sie | 11           | 1-022-218-00 |             | Import frame! |
| 2.      |          | 50-03-0497  |            | BC 550 E 6328            | Sie               | 1            | 1.022.215.00 |             | Time Lode Or  |
| u.      |          | 50.01.0329  | MF 140     |                          | 5.9               | 1>           | 1-922-271-99 |             | Time Code of  |
|         | 7        | 50.01-0436  | 86.7376    | BESATE BESSUR            | ITT. Mat. Ph. Sit |              |              |             |               |
|         |          | 90.01.0129  | WF 144     |                          | 5.8               |              |              |             |               |
|         |          | 50.33.0150  | 31125      | 1112. IM000062           | Sc. NS. Mor       |              |              |             |               |
| Q.      |          | 30.03.01.00 |            |                          |                   |              |              |             |               |

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| DIVALENT       | HAMILIF .  | IND. POLING.   | PART NO.         | VALUE       | SPECIFICATIONS 2 11    | DULYAL S. M. | 44.5 |
|----------------|------------|--|------------------|-------------|------------------------|--------------|------|
|                |            |  |                  |             |                        |              |      |
|                | Search For | The state of the s |                  |             | 59-01-00/0             |              |      |
|                |            | Note It Contact  | Berra Ye.        |             | 75 169-102-16          |              |      |
|                |            |  | Philips Nr.      |             | 2024 029 49101         |              |      |
|                |            | fire doe;  | Studer St.       |             | 14-01-0021             |              |      |
|                |            |  | Lognated Nr      |             | 313-1305-000 404       |              |      |
|                |            |  | Photogs Nr.      |             | 2422 074 89003         |              |      |
|                |            |  |                  |             |                        |              |      |
|                |            | Note 21 Patentia   | meter. Innuar.   | BOUTTS Nr.  | 1329 H - 1 - 203       |              |      |
|                |            |  |                  | VAN Nr.     | 120 - 20w              |              |      |
|                |            |  |                  | Less Mr.    | 170 - 201              |              |      |
|                |            |  |                  |             |                        |              |      |
|                |            | Note 3: Futeritie  | meter. linear.   |             | 3329 H - 1 - 507       |              |      |
|                |            |  |                  | LOSS NO.    | 170 - 10               |              |      |
|                |            |  |                  |             | 100 - 10               |              |      |
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|                |            | 5.0  | reshesement Sies | Lieumns . 1 | agistynetics: Stistud  | er.          |      |
|                |            |  |                  |             | miconductors, fritele  | funken.      |      |
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| OS Nr. 2322 66 | . Atmos    |  |                  |             |                        |              |      |
| ps (721 au.    | ******     |  |                  |             |                        |              |      |
|                |            | 0816 45/07/22  |                  |             |                        |              |      |
|                |            | 19016 45/01/27   |                  |             |                        |              |      |
| 1.820.721.8    | S PACE .   | STUDER (C  | 0) #5/07/22 LM   | C006 #6     | AD/WRITE UNIT          | 1.820-721-61 | PAGE |

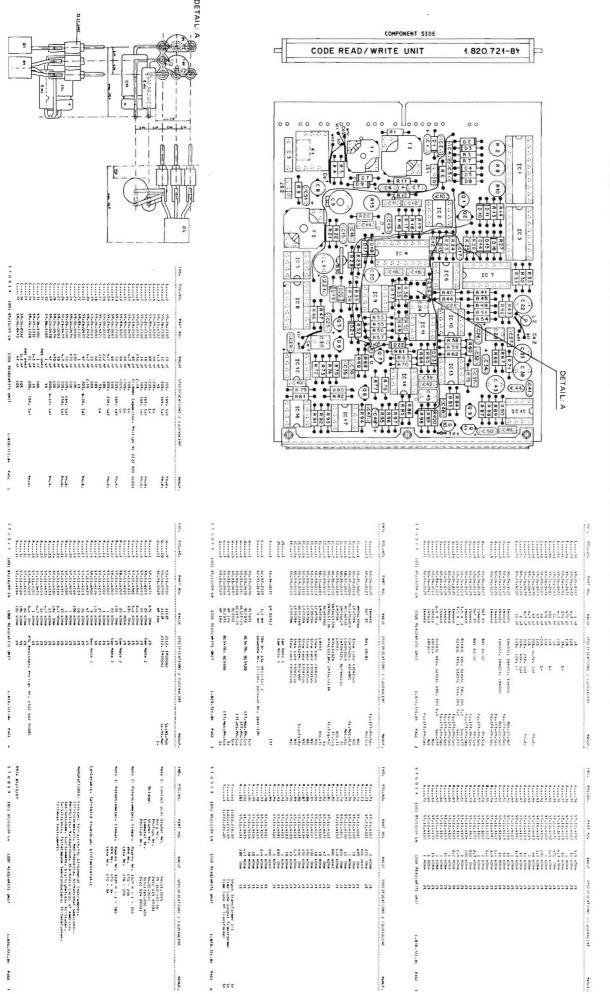
VALUE SPECIFICATIONS / EQUIVALENT

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|    | 15.40. | PART NU.        | VALUE    |            |       |     | · #UI VALENI      |         | us.  | 191. PBS.NO |      | PART 40.    | VALUE     | SPECIFICATIONS |           | 41        | MANUF         |
|----|--------|-----------------|----------|------------|-------|-----|-------------------|---------|------|-------------|------|-------------|-----------|----------------|-----------|-----------|---------------|
| ٠. |        | 59.20.2100      | 10       | 201.       | lay.  | 541 |                   |         | Ph   | ·           |      | 59.05.1102  | 1 55      | 13             |           |           |               |
|    |        | 39.29.2190      | 10 4     | 701.       |       |     |                   |         | Ph   | ()          |      | 39.00-0477  | and of    | 101            |           |           |               |
|    |        | 37-11-011/      | 3.1 00   | 25         |       |     |                   |         |      | L 4         |      | 39.12.2471  | 470 of    | 101            |           |           |               |
|    |        | 39.99.0245      | 66 07    | -201.      |       | Le  |                   |         |      | ·           |      | 59.34.4151  | 150 05    | 32. (*         |           |           |               |
|    |        | 59.94.0295      | 66.05    | .203.      |       | Le  |                   |         |      | ţ4          |      | 59-30-0-77  | 4-7 nil   | 101            |           |           |               |
|    |        | 59.29.2100      | 10 64    | 202.       |       |     |                   |         | Pn   | (           |      | 50.05.110)  | 10 05     | 13             |           |           |               |
|    | 1      | 59.20.2100      | 1.0      | 201.       |       |     |                   |         | Ph   | 6           |      | 59.37.2661  | 9-80 of   | 101 (+         |           |           |               |
|    |        | 39.93.2131      | 190 60   | 4.72       |       |     |                   |         |      | L           |      | 31-00-0474  | 470 mf    | 101            |           |           |               |
|    |        | 39.10.0152      | 62 45    | Trism      |       |     | . Philips Nr 2222 | BOX OFF | Int. |             |      | 39.99.0205  | AG OF     | -201 (e        |           |           |               |
|    | 10     | 59.14.0479      | 4.7 25   | 192.       |       | Co  |                   |         |      | ·           |      | 59.06.0473  | 47 mf     | 101            |           |           |               |
|    |        | \$9.99.0205     | 60 115   | -201.      |       | Co  |                   |         |      | · · · · ·   |      | 19.20.0570  | 47 45     | 701, 0.34, 54  | ¥         |           |               |
|    | 12     | 39.99.0205      | \$10 ml  | -201.      |       | Co. |                   |         |      |             |      | 59.00.0472  | **! 01    | 101            |           |           |               |
|    | 1)     | 39.20.2100      | 10 us    | 701.       | lav.  |     |                   |         | Pn   | ( 5         |      | 34-20-3479  | ** 1 uf   | 201, 234, 50   |           |           | 20            |
|    |        | 39-00-0061      | 60 46    | 101        |       |     |                   |         |      | 5 5         |      | 19.26.9100  | 1 45      | 201. 40V. Sa   |           |           |               |
|    | 15     | 34-10-5572      | 4-7 45   | 293.       | 239.  | 6.1 |                   |         | 9h   |             |      | 34750.4104  | 1 4       | 20101. 34      |           |           |               |
|    |        | 19-00-0227      | 2.2 06   | 103        |       |     |                   |         |      | D           | ν.   | 50-00-0122  | 154001    | IM4002 - 1M400 |           |           | 01.61.501     |
|    | 11     | 19.34.4101      | 100 pf   | 22.        |       | C+  |                   |         |      | 9           |      | 59.00.0125  | 12444     | (weeps; Iwent  | ), 1xe0ce |           | Tr.Ph.Se      |
|    | 16     | 99.00.0083      | 00 01    | 191        |       |     |                   |         |      | 3           |      | 50-24-0122  | [N+00]    | IA4002 - IA400 |           |           | ot . Gl . So! |
|    |        | >9-00-0101      | 10 05    | 101        |       |     |                   |         |      | ü           |      | 10.04.0125  | 12000     | 1440021 14400  | 3. Iwenne |           | ITI.Ph.Ses    |
|    |        | 39-05-2472      | 4-7 nf   | 4.33       |       |     |                   |         |      | V           |      | 50-04-0125  | 100000    |                |           |           | Tr. Ph. Set   |
|    | 21     | 39-20-0-10      | 47 us    |            | 0.JY. |     |                   |         | Ph   |             | ,    | 30-04-0123  | INTERNA   |                |           |           | 111-641747    |
|    |        | 59.03.1107      | 1 0      | 11         | 0.,,, | 341 |                   |         |      | 0           | 7    | 50.04.0127  | BAT BS    | 845 40-07      |           |           |               |
|    |        | 39.00.010       | 100 mf   | 101        |       |     |                   |         |      | 0           |      | 30-01-0125  | INSSA     | 84, 40-07      |           | 21011     | Ph.Sie        |
|    |        | 29.00.0010      | 470 ms   | 101        |       |     |                   |         |      | 0           |      | 30.04.0127  | 841 85    | BAS 40-02      |           |           |               |
|    |        | 19.24.2100      | 10 4     | 201.       | 2000  | 541 |                   |         | 80   | 91          |      | 50.04.0125  | 184448    | HAS 40-07      |           | 2 8       | Tr.Ph.Ses     |
|    | 20     | 39.20.3479      | **1 us   | 201.       |       | Sal |                   |         | Ph   | 0           |      | 30.04.0125  | INSSAU    |                |           |           | FI.Ph.Ses     |
|    |        | 19.00-0101      | 10 mf    | 101        |       |     |                   |         |      | 91          |      | 50-04-0125  | I Manager |                |           |           |               |
|    |        | 19.00.0474      | 10 nf    | 101        |       |     |                   |         |      | 91          |      | 50.04.3125  | [Rees     |                |           |           | FT.Ph.Set     |
|    | /9     | 50.20.0470      | 47 uf    |            | 0. JV |     |                   |         | *    | WI          |      | 10-04-0125  | IRAAAII   |                |           | ***       | fl.Ph.Ses     |
|    |        | 39.00.3105      | l uf     | 23         |       |     |                   |         |      | 01          |      | 10.04.0171  | INSSSI    |                |           |           | Tr.Ph.Set     |
|    |        | 7-100-1107      | not ward | ,.         |       |     |                   |         |      | 01          |      | 50.00.0125  | Incord    |                |           |           | TI.PR.Ses     |
|    | 32     | \$9.00.3102     | 1 0      | 101        |       |     |                   |         |      | 01          |      | 20.04.0125  | 144448    |                |           |           | TI. Ph. Ses   |
|    |        | 39.03.1337      | 3.3 05   | 13         |       |     |                   |         |      | 0)          |      | 30-04-1102  | 0.8 Y Z   | 82381C a.s. /  |           | ,         |               |
|    |        | 39-20-1220      | 22 01    | 201.       |       | Sal |                   |         | Ph   | 01          |      | 10.04.3517  | INSELS    | 185419         | PU 5.8    |           | Set . ITT     |
|    | 15     | 74114.1110      | nat used |            | ,00   | 30. |                   |         | -1.  | V?          |      | 10.04.0112  | 195816    | 185819         |           |           | ™at           |
|    |        | 59.90.0332      | 1.1 0    | 101        |       |     |                   |         |      | D2          |      | 10.04.0125  | 145010    | INSBIR         |           | Sections  | Not.          |
|    |        | 19.00.0071      | 3. 3 0   | 101        |       |     |                   |         |      | 02          |      | 10.04.0125  | 14444     |                |           |           | II.m.bas      |
| ٠. | ,      | 7**********     | 47.00    | 101        |       |     |                   |         |      | D2          | •    | 30.04.0125  |           |                |           | F < + 1   | Tf. Ph. Sec   |
|    |        | 901 #5/07/22 64 | COOL VE  | 40/44 ( FE | UNIT  |     | 1-420-721-03      | PAGE    | 1    | 11006.      | (00) | 41/07/22 CM | CODE RE   | AD/WAITE UNIT  | 1.4       | 20.721.41 | PACE          |

| 140. | P05.N0-   | PART NO.      | VALUE         | SPECIFICATIONS / EUUI |              | MANU |   |
|------|-----------|---------------|---------------|-----------------------|--------------|------|---|
|      | £         | 57-11-4191    | LO MCPIO      | a                     |              |      |   |
|      | R 30      | 51-11-4105    | I MCha        | 21                    |              |      |   |
|      | 8 17      | 57.11.4103    | 10 kOhe       | /1                    |              |      |   |
|      | E 36      | 57-11-1472    | w-7 KONM      | 13                    |              |      |   |
|      | 9 19      | 57-11-4471    | . TO Dhe      | 73                    |              |      |   |
|      | P 40      | 57-11152      | 1.5 kOhm      | 21                    |              |      |   |
|      | A 41      | 57.11.4102    | 1 MONe        | 21                    |              |      |   |
|      | 4 42      | \$7-11-4104   | 1 Oil William | 23                    |              |      |   |
|      |           | 57.11.4152    | 1.5 KONM      | 21                    |              |      |   |
|      | R         | 57.11.4683    | AS NONe       | 23                    |              |      |   |
|      | R         | 57-11-4105    | 1 AONW        | 11                    |              |      |   |
|      | R 40      | 57-11-4101    | IG NONe       | 23                    |              |      |   |
|      | \$ 67     | 57-11-4103    | 10 kOne       | 23                    |              |      |   |
|      | X 43      | 57.11.4792    | J. W KOND     | 21                    |              |      |   |
|      | 1 49      | 57.11.+102    | 1 aOne        | 41                    |              |      |   |
|      | M 50      | 57.11.4101    | 10 mOne       | 23                    |              |      |   |
|      | H 51      | 57-11103      | LG NOMM       | 22                    |              |      |   |
|      | 9 52      | 57-11-5100    | LO MONM       | 51                    |              |      |   |
|      | R 51      | 57.11.3112    | I-I KONE      | 11                    |              |      |   |
|      |           | 57.11.4192    | 1.9 a0mm      | 2 t                   |              |      |   |
|      | A 55      | 57.11.3112    | 1-1 kOhm      | 13                    |              |      |   |
|      | R 30      | 57-11-3202    | 2 million     | 13                    |              |      |   |
|      | 4 57      | 57-11-1102    | i kūrie       | it.                   |              |      |   |
|      | 4 50      | 37-11-3272    | 2.7 Million   | 1%                    |              |      |   |
|      | 4 54      | 17-11-3521    | 820 Ohm       | i t                   |              |      |   |
|      | *0        | 37-11-4104    | 100 x 0hm     | 21                    |              |      |   |
|      | H 51      | 57-11-4105    | L HONE        | 23                    |              |      |   |
|      | R 62      | 51.11.3152    | 1.5 x One     | 13                    |              |      |   |
|      | R 01      | 57.11.5225    | Z.Z MONN      | 52                    |              |      |   |
|      | H         | 31-11-4105    | 1 killine     | 71                    |              |      |   |
|      | *         | 57-11-410)    | TO MOUNT      | 21                    |              |      |   |
|      | A 55      | 57-11-3107    | L Adha        | 12                    |              |      |   |
|      | R 07      | 57-11-3302    | 1 HONW        | 13                    |              |      |   |
|      | *         | 37-11-4153    | 15 billion    | 21                    |              |      |   |
|      | 4 09      | 57-11-4105    | L MOTH        | 21                    |              |      |   |
|      | 110       | \$7.11.4105   | I AONE        | n                     |              |      |   |
|      | R 71      | \$7-11105     | I AONa        | 4.5                   |              |      |   |
| 1 0  | 0 F . (00 | 1 85/07/22 L4 | COOL 464      | D/WELLE DATE          | 1.020.721.0) | PACE | B |

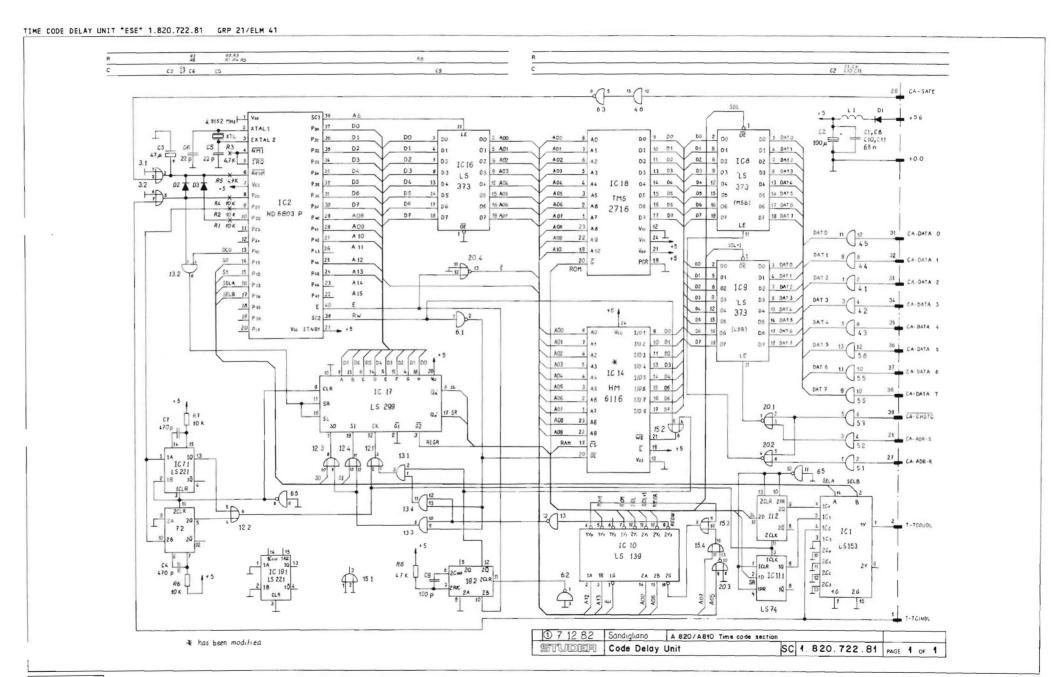


TIME CODE READ/WRITE UNIT "ESE" 1.820.721.84 GRP 21/ELM 40

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A820

STUDIES

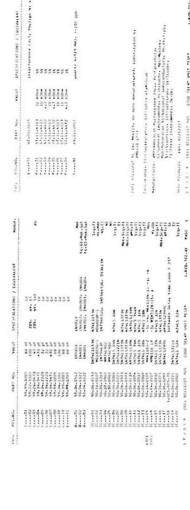


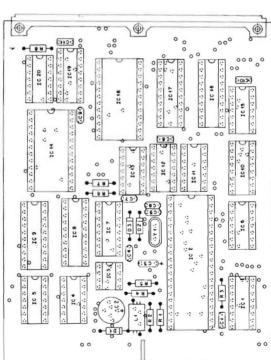


7/38

CODE DELAY UNIT "ESE" 1.820.722.81 GRP 21/ELM 41

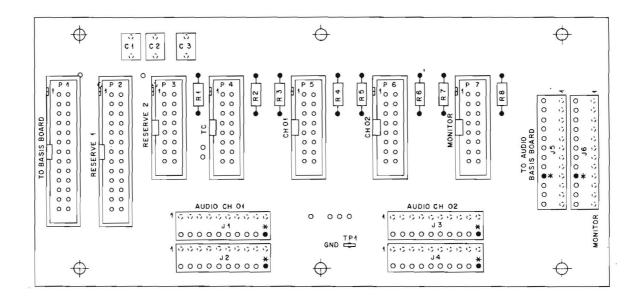
TIME



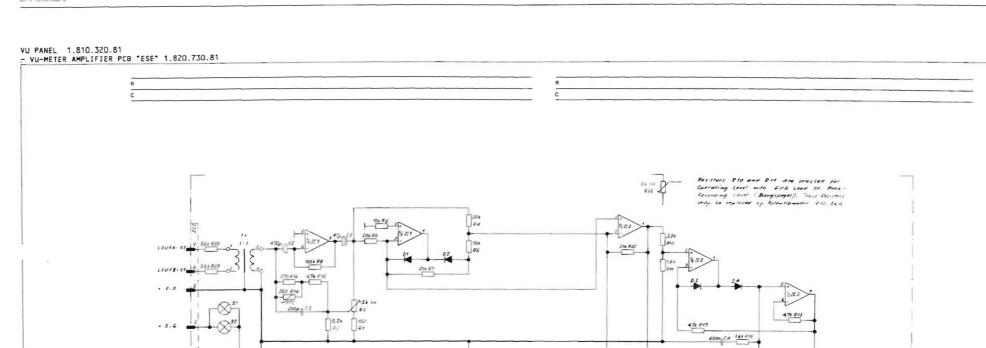


CODE DELAY UNIT 1.620.722.84

DISTRIBUTION PCB 1.820.794.00 GRP 70



| 2   | 59.06.0474<br>69.06.0474<br>99.06.0474<br>67.11.4100<br>67.11.4100 | 470 nF<br>470 nF<br>470 nF<br>10 Uhm  | 201, 6:3V<br>201, 25V<br>201, 25V |                         |
|-----|--|---|-----------------------------------|-------------------------|
| 3   | 9.06.0474<br>57.11.4100<br>57.11.4100                              | 470 nF<br>10 Uhm<br>10 Ohm  | 20%. 25V                          |                         |
| 2 5 | 57.11.4100<br>57.11.4100   | to then   | 101                               |                         |
| 3 5 | 7-11-4100  | 10 Ohm  |                                   |                         |
| 3 5 |  |   | 101                               |                         |
|     | 7-11-4100  |   |                                   |                         |
| 4   |  | 10 Ohm  | 101                               |                         |
|     | 57.11.4100   | 10 Ohm  | 101                               |                         |
| 5 5 | 7-11-4100  | 10 Ohm  | 101                               |                         |
| 5   | 7.11.4100  | 10 Uhm  | 10%                               |                         |
| 7 9 | 7.11.4100  | 10 Uhm  | 102                               |                         |
| 8 5 | 7-11-4100  | 10 0hm  | 10%                               |                         |
| 5   | 4.01.0290  | 10 cont.  | CIS. AMP Nr. 163-680-9            |                         |
| 2 5 | 4.01.0290  | 10 cont.  | CIS. AMP Nr. 163.680-9            |                         |
| 3 5 | 4.01.0290  | 10 cont.  | CIS. AMP Nr. 163.680-9            |                         |
| 4 5 | 4.01.0290  | 10 cont.  | CIS, AMP Nr. 163.680-9            |                         |
| 5 5 | 4.01.0215  | 12 cont.  | CIS. AMP Nr. 1-163-680-1          |                         |
| 6 5 | 4-01-0215  | 12 cont.  | CIS. AMP Nr. 1-161.680-1          |                         |
| 1   | 4.14.2003  | 26 cont.  | See note 1                        |                         |
| 2 5 | 4-14-2003  | 26 cont.  | See note 1                        |                         |
| )   | 4-14-2002  | 16 cont.  | See note 2                        |                         |
| 4 5 | 4-14-2002  | 16 cont .   | See note 2                        |                         |
| 5   | 4.14.2002  | 16 cont.  | See note 2                        |                         |
| 5   | 4-14-2002  | 16 cont.  | See note 2                        |                         |
|     |  | 16 cont.  | See note 2                        |                         |
| 1 2 | 9.21.6002  |   | Yestpoint                         |                         |
| ֡   |  | 7 77.11-4100 8 37-11-4100 11 54-01-0790 2 54-01-0790 4 54-01-0700 5 54-01-0710 5 54-01-0715 6 54-01-0715 11 54-14-2003 2 54-14-2003 3 54-14-2002 7 54-14-2002 |                                   | 7 37.11-4100 10 Umm 10t |



2204

IC1...3, Pin 4

2#5639 02 S D

10M

| 21.1.83      | Buchegger | A820/A840 | Audio | Section |    |     |        | Part of GRP 7 |
|--------------|-----------|-----------|-------|---------|----|-----|--------|---------------|
| ട്ടാവ സ്വള്ള | VU- Meter | Amolifier |       | SC      | 14 | 920 | 770-01 | PAGE 1 OF     |

1.15.0

£121,PT 1

EL21, PT 2

+15.0

-15.0

- 0.0

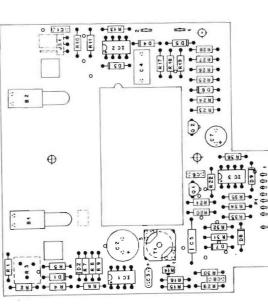
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A820

STUDIETS:

VU PANEL 1.810.320.81 - VU-METER AMPLIFIER PCB "ESE" 1.820.730.81

|              | £  |                          | 1.52       | 11.34       |             | 4                                     | The production           |       | 10.81 PAGE 1 | - Partie                    |  |           |                                      | 1001 6 000                     |  |           |                                      |            |            |   |        |                                     | .5                    | 2 554.0 18-0       | Acres .                  |  |                              |                      |
|--------------|--|--------------------------|------------|-------------|-------------|---------------------------------------|--------------------------|-------|--------------|-----------------------------|--|-----------|--------------------------------------|--------------------------------|--|-----------|--------------------------------------|------------|------------|---|--------|-------------------------------------|-----------------------|--------------------|--------------------------|--|------------------------------|----------------------|
| Car cole it  | 352  | 150. 11                  | 35         | 10072509    | See sole /  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | KYZ                      |       | 1466.7       | TALLET ICATIONS / COLVALING | See mate 1                             |           |                                      | PTE Assistary Preliups wer 235 |  | 1         |                                      | 55         | 555        |   |        | ==                                  | I to 1 James ( ) to 1 | Ameliaties teatury | PREPREATIONS / NUINACENT | 100 000 001<br>01-100-100-100<br>100-100-100-100                             |                              | Suppliestyral        |
| Cana         | 133231   | 82<br>22                 |            |             |             |                                       | 84.73.78                 | 10 01 | VU-MITER .   | 107 Tax                     | ************************************** | 2000      | 1-91 aches<br>3-4 aches<br>3-4 aches | 71.7 x 20mm                    | Til Uhn                                | L. s. She | 22 although                          | *********  | 2.00       | 10 to | 27 Dec | - 20 C                              |                       | W-411P A           | 10.4                     | 2.00.<br>2.27.5<br>2.7.2.6.0127. Alemna<br>2.7.2.011.0125. serg<br>2.7.2.00. | 3385 F-1-502<br>838 502 1010 | Palyester. P         |
| 10 - 20 - 24 | 25.45.25.2<br>24.25.25.3<br>24.25.25.3<br>24.25.25.3<br>24.25.25.3<br>24.25.25.3 | 54-77-5101<br>54-77-5101 | 70.00.0101 | \$0.04.0101 | 1.810.Wa.22 | *********                             | 10.01.01.0<br>10.01.0111 |       | 41/02/22 No. |                             | 16.01.656/                             | 77-11-370 | 57-1110-<br>57-1119-2                | 27-11-4-72                     | 97-11-4271<br>97-11-4271<br>57-11-4472 | 2011-11-0 | 77-11-775<br>77-11-775<br>77-11-6186 | 37-11-34.K | 57-11-3-17 | 74  |        | 57-11-150<br>57-11-150<br>57-11-150 | 1-323-511-01          | 1 81/22/22 801     | 7                        | ACTOR STATES   |                              | The chief british in |
|              | ]]]]]]]  |                          |            | rgy         |             |                                       | 1                        | 1     | 00           | *01.40                      | ]]]                                    |           |                                      |                                |  | 1         |                                      | 2          |            |   |        |                                     | 101                   | *                  | 21.00                    | 10111  |                              | ÷                    |
|              |  |                          |            |             |             |                                       |                          |       | 2 - 2        | ż                           |  |           |                                      |                                |  |           |                                      |            |            |   |        |                                     |                       | 1 4                | 9                        | 2                                      |                              | Carterantes          |



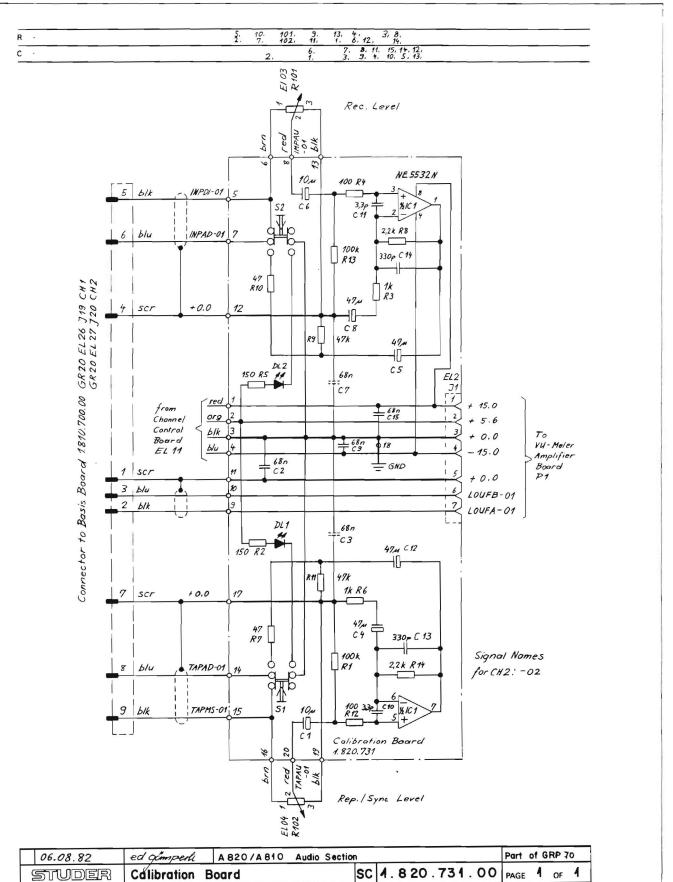
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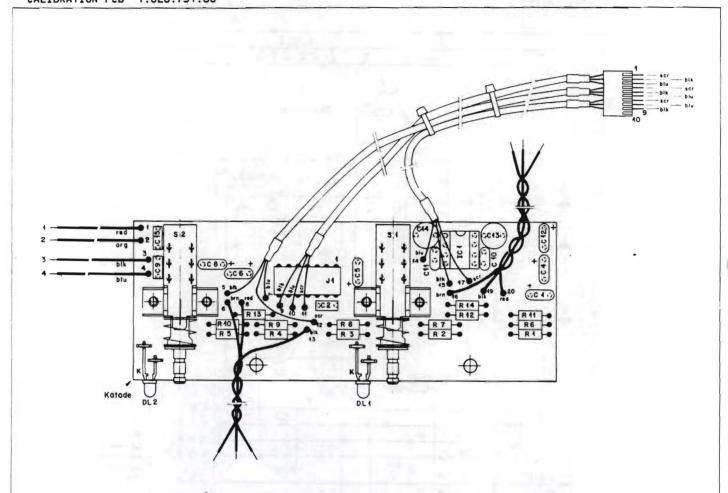
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CALL SIDERFF

VU PANEL 1.810.320.81 - CALIBRATION PCB 1.820.731.00



VU PANEL 1.810.320.81 - CALIBRATION PCB 1.820.731.00



|        | PART NO.   | VALUE      | SPECIFICATIONS / EQUIVALENT | HANUF     |
|--------|------------|------------|-----------------------------|-----------|
| C 001  | 59-26-2100 | 10 uf      | lev. Sal                    | Ph        |
| C 002  | 59.99.0205 | 68 OF      | Ce.                         |           |
| C 003  |            | not used   |                             |           |
| C 004  | 59-26-0470 | 47 uf      | 6V. Sal                     | Ph        |
| C 005  | 59.26.0470 | 47 uf      | 6V. Sal                     | Ph        |
| L 006  | 59.26.2100 | 10 uf      | 16V. Sal                    | Ph        |
| C 007  |            | not used   |                             |           |
| C 008  | 59.26.0470 | 47 uf      | ov. Sal                     | Ph        |
| C 009  | 59.99.0205 | 68 nF      | (e                          |           |
| C010   | 59.34.0339 | 3.3 pf     | Ce                          |           |
| C 011  | 59.34.0339 | 3-3 pF     | Le                          |           |
| C 012  | 59.26.0410 | 47 UF      | ov. Sal                     | Ph        |
| C 013  | 59.05.2331 | 330 pF     | PP                          |           |
| C 014  | 59.05.2331 | 330 pf     | PP                          |           |
| C 015  | 59.99.0205 | 68 nF      | Ce                          |           |
| DL DOI | 50.04.2130 | COV 13-5   | 0 62703-0 575               | Sie       |
| OF 005 | 50.04.2130 | CQV 13-5   | 0 62703-0 575               | Sie       |
| 10001  | 50.09.0105 | NE 5532N   | X85532N+ 5532NB             | SigiEniRa |
| J001   | 54-01-0244 | 7 cont.    | AMP Nr. 163-683-5           |           |
| R 001  | 57-11-4104 | 100 kDhm   |                             |           |
| R 002  | 57-11-4151 | 150 Ohm    |                             |           |
| 8 003  | 57-11-4102 | 1 kOne     |                             |           |
| R 004  | 57-11-4101 | 100 Ohm    |                             |           |
| R 005  | 57-11-4151 | 150 One    |                             |           |
| R 006  | 57-11-4107 | 1 kOhm     |                             |           |
| 8007   | 57-11-4470 | 47 Ohm     |                             |           |
| H 008  | 57-11-4222 | 2 . 2 kOhm |                             |           |
| R 009  | 57-11-4473 | 47 kOhm    |                             |           |
| R 010  | 57-11-4470 | 47 Qhm     |                             |           |
| R 011  | 57-11-4473 | 47 kOhm    |                             |           |
| H 012  | 57-11-4101 | 100 Ohm    |                             |           |
| 8 013  | 57-11-4104 | 100 kOhm   |                             |           |
| 8014   | 57-11-4222 | 2.2 kOhm   |                             |           |

| R 101 | 58.10.9006<br>58.10.9006 | kOhm | log | Allen | Bradle<br>Bradle | y Mr. | AL | 1 7 | 072 | 5 | 103 | ** |
|-------|--------------------------|------|-----|-------|------------------|-------|----|-----|-----|---|-----|----|
| 5002  | 1-820-731-01             |      |     |       | over             |       |    |     |     |   |     | 51 |
|       |                          |      |     |       |                  |       |    |     |     |   |     |    |
|       |                          |      |     |       |                  |       |    |     |     |   |     |    |

Ce\*Ceramic. PP\*Polypropylen. Sal\*Solid aluminium

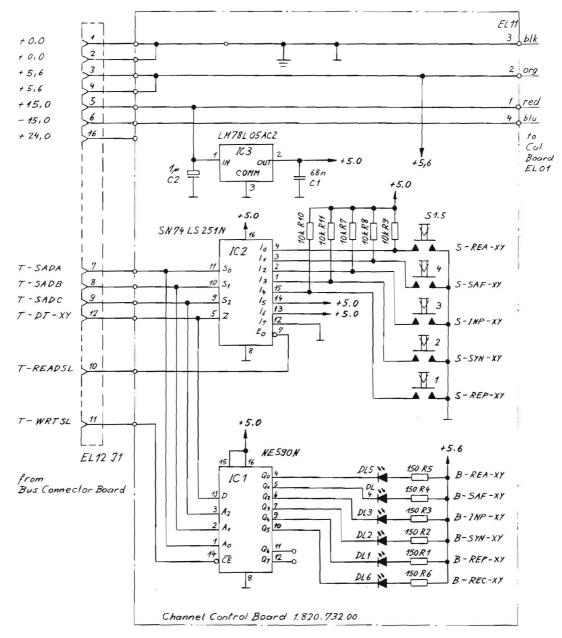
RANUFACTURER: Ex\*Exar. Ph\*Philips. Ra\*Raytheon. Sie\*Siemens.
Sie\*Signatics. St\*Studer.

ORIG 82/08/06.

S T U O E R (00) 82/08/06 GAE CALIBRATION BOARS

VU PANEL 1.810.320.81 CHANNEL MODE SELECTOR UNIT 1.810.335.81 - CHANNEL CONTROL PCB 1.820.732.00

> R 10.11.7,8,9, 5,4,3,2,1.6 C 2. 1



Bottom View

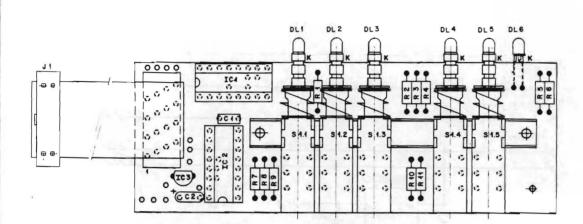
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Bottom View

LM 78 L 05 AcZ

| 06.08.82 | gamperic 15 A 820/ A810 | Audio Section   | Part ( | of G | RP 7 | 0 |
|----------|-------------------------|-----------------|--------|------|------|---|
| STUDER   | Channel Control Board   | SC 4.820.732-00 | PAGE   | 4    | OF   | 4 |

VU PANEL 1.810.320.81 CHANNEL MODE SELECTOR UNIT 1.810.335.81 - CHANNEL CONTROL PCB 1.820.732.00







| MANUF  | SPECIFICATIONS / EQUIVALENT | VALUE  | PART NO.        | POS-NO- | IND. |
|--------|-----------------------------|--|-----------------|---------|------|
|        |                             | -1-7-2-10-10-10-10-10-10-10-10-10-10-10-10-10- | Ser Sell-Server |         |      |
|        | Ce                          | 68 nF  | 59.99.0205      | C 001   |      |
| Ph     | 16V. Sal                    | 1 uF   | 59.26.9109      | C 002   |      |
| Sie    | 9 62703-9 575               | COV 13-5                                       | 50-04-2130      | 01 001  |      |
| Sie    | 9 62703-9 575               | COV 13-5                                       | 50-04-2130      | 20010   |      |
| Sie    | 0 62703-0 575               | CQV 13-5                                       | 50.04.2130      | 01003   |      |
| Sie    | 0 62703-0 575               | CQV 13-5                                       | 50-04-2130      | DL 004  |      |
| Sie    | 0 62703-0 585               | CQV 15-5                                       | 50-04-2131      | OL 005  |      |
| Sie    | 0 62703-0 571               | COV 11-5                                       | 50.04.2129      | DL 006  |      |
| Sig    |                             | NES9ON   | 50-15-0102      | 10 001  |      |
| AMI.TI | ANTAL S251N                 | SN74LS251N                                     | 50.00.0251      | 10002   |      |
| FC.NS  | UATBLOSANC                  | LM78LOSACZ                                     | 50-10-0107      | 14003   |      |
|        | See note 1                  | 16 cont.                                       | 54-14-5021      | J 001   |      |
|        |                             |  |                 |         |      |
|        |                             | 150 Ohm  | 57-11-4151      | R 001   |      |
|        |                             | 150 Onm  | 57-11-4151      | R 002   |      |
|        |                             | 150 Ohm  | 57-11-4151      | K003    |      |
|        |                             | 150 Ohm  | 57-11-4151      | R 004   |      |
|        |                             | 150 Ohm  | 57-11-4151      | R 005   |      |
|        |                             | 150 Ohm  | 57-11-4151      | 4 006   |      |
|        |                             | 10 kOhm  | 57-11-4103      | R007    |      |
|        |                             | 10 kOhm  | 57-11-4103      | H 008   |      |
|        |                             | 10 kOhe  | 57-11-4103      | R 009   |      |
|        |                             | 10 kOhm  | 57-11-4103      | R 010   |      |
|        |                             | 10 kOhm  | 57-11-4103      | A011    |      |
| St     | 502pole change over switch  |  | 1-820-732-01    | \$ 2    |      |

| tote 1 - 1 | Lonnectio | Mr. FAS-10-17.                                       | 820.733.00  | FRS-16 BO-4P  |          |  |
|------------|-----------|--|-------------|---------------|----------|--|
| erceranie  | . Saleso  | lid aluminium  |             |               |          |  |
| AAUFACTU   | NSHN      | American Micro<br>actional Semicon<br>Signetics, Sta | ndutors, Pt | sehilips. Sie | Siemense |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |
|            |           |  |             |               |          |  |

TUD SR (00) 82/08/06 GAE CHANNEL CONTR. BOARD

1.820.732.00 PAGE

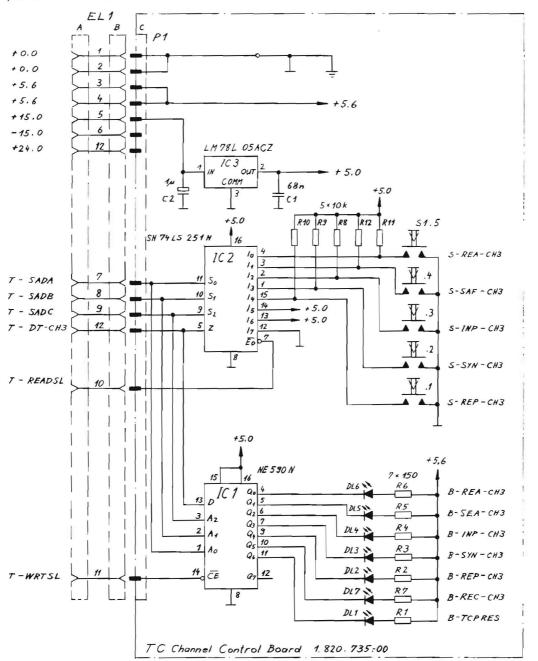
ORIG 82/00/05 5 T T O E R (00) 82/06/00 GAE CHANNEL CONTR. 80AR(

1.820.732.00 PAGE 2

# TC CHANNEL MODE SELECTOR UNIT 1.810.337.00 - TC CHANNEL CONTROL PCB 1.820.735.00

10, 9, 8, 12, 11, 6,5,4,3,2,7,1 C 2, 1,

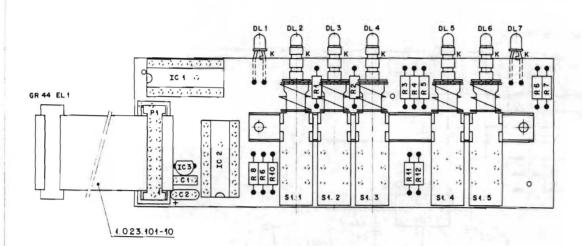
from Bus Connector Board



Boltom View LM 78 L 05 ACZ

| 26, 5, 83 | Gamperle 1511 | A820 / A810   | Time Code | Secti | on     |        | Part | of GRP 70 |
|-----------|---------------|---------------|-----------|-------|--------|--------|------|-----------|
| STUDER    | TC Channel (  | Control Board | d         | sc    | 1.820. | 735-00 | PAGE | 1 OF 1    |

TC CHANNEL MODE SELECTOR UNIT 1.810.337.00 - TC CHANNEL CONTROL PCB 1.820.735.00







| MANUF. | SPECIFICATIONS / EQUIVALENT | VALUE      | PART NO.     | POS-MO-   | INO. |
|--------|-----------------------------|------------|--------------|-----------|------|
|        |                             |            |              |           |      |
|        | Ce                          | 68 nF      | 59.99.0205   | C001      |      |
| Ph     | 16V. Sal                    | 1 uf       | 59.26.9109   | C *** 005 |      |
| Sie    | 0 62703-0 585               | COV 15-5   | 50-04-2131   | OL 001    |      |
| Sie    | 9 62703-9 575               | CQV 13-5   | 50.04.2130   | OL 002    |      |
| Sie    | 0 62703-0 575               | CQV 13-5   | 50.04.2130   | DL 003    |      |
| Sie    | 0 62703-0 575               | COV 13-5   | 50-04-2130   | DL 004    |      |
| Sie    | 9 62703-9 575               | CQV 13-5   | 50-04-2130   | DL 005    |      |
| Sie    | 0 62703-0 565               | COV 15-5   | 50-04-2131   | DL 006    |      |
| Sie    | 0 62703-0 571               | COV 11-5   | 50-04-2129   | DL 007    |      |
| Sig    |                             | NE590N     | 50-15-0102   | 10001     |      |
| ITTIMA | AM74LSZ51N                  | SHTALSZSIN | 50.06.0251   | 10002     |      |
| FC+NS  | UA78LOSANC                  | LM78LOSACZ | 50-10-0107   | 16 003    |      |
|        | See nate I                  | 16 cont.   | 54-14-2002   | P001      |      |
|        |                             | 150 Ohe    | 57-11-4151   | R 001     |      |
|        |                             | 150 Ohm    | 57-11-4151   | R 002     |      |
|        |                             | 150 Onm    | 57-11-4151   | R 003     |      |
|        |                             | 150 One    | 57-11-4151   | R QU4     |      |
|        |                             | 150 Ohm    | 57-11-4151   | R 005     |      |
|        |                             | 150 Ohm    | 57.11.4151   | R 006     |      |
|        |                             | 150 Ohm    | 57.11.4151   | R 007     |      |
|        |                             | 10 kOhe    | 57-11-4103   | R 008     |      |
|        |                             | 10 kOnm    | 57-11-4103   | R DO9     |      |
|        |                             | 10 kOnm    | 57-11-4103   | R010      |      |
|        |                             | 10 kOhm    | 57-11-4103   | R011      |      |
|        |                             | 10 kOne    | 57-11-4103   | R 012     |      |
| St     | 502pole change over switch  |            | 1.620.732.01 | \$ 001    |      |

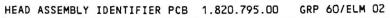
| Con          | nection cable Stud                         | er Mr. 1.023. | - BPH 9 B 16 BOD TH    |  |
|--------------|--|---------------|------------------------|--|
|              | Sal-Solid aluminiu                         |               |                        |  |
| IAMUFACTURER | : AMI - American Mic<br>MS - National Semi | condutors. Pt | -Philips. Sie-Stemens. |  |
|              | Sig=Signetics: S                           | t-Studer. TI- | Textas Instruments.    |  |
|              |  |               |                        |  |
|              |  |               |                        |  |
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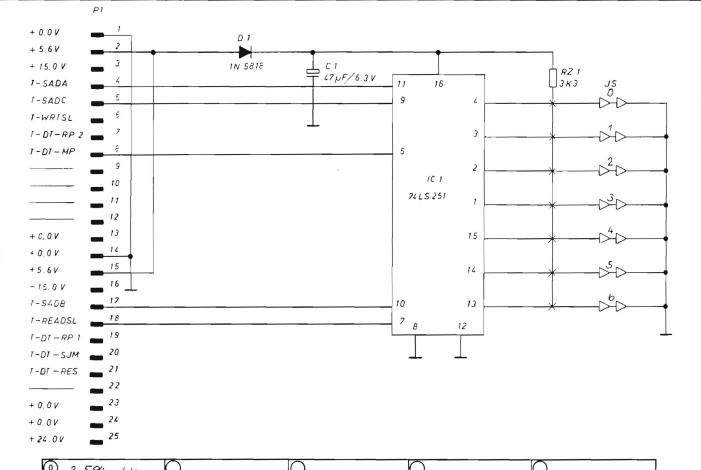
5 7 U O E R (00) 83/07/06 GAE TC CHANNEL CONTR. BOX

1.820.735-00 PAGE

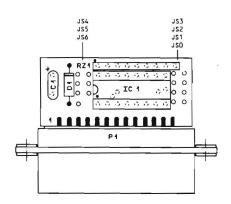
RIG 83/07/06

1.820.735.00 PAGE 2





| 0 3.5.84 Ne |                              | 0               |
|-------------|------------------------------|-----------------|
|             | A 820 Logic Section          | PAGE 1 OF 1     |
| STUDER      | Head Assembly Identifier PCB | SC 1.820.795.00 |



| FOR VERSION:            | JUMPERS INT |   |   |   |  |  |  |
|-------------------------|-------------|---|---|---|--|--|--|
| A820-1, A820-1 VU       | ×           |   |   |   |  |  |  |
| A820-0.75               |             | × |   |   |  |  |  |
| A820-0.75 VU            | ×           | × |   |   |  |  |  |
| A820-2 F                | ×           | × | × |   |  |  |  |
| A820-2, A820-2 VU       |             |   | × |   |  |  |  |
| A820-2/2 VU             | ×           |   | × |   |  |  |  |
| A820-2 TC, A820-2 TC VU |             | x | × |   |  |  |  |
| A820-2/2-1/2" VU        | ×           | x |   | х |  |  |  |
| A820-2/2-1/2" TC VU     | *           | × |   | × |  |  |  |

|   |                                       | PART                                     | POS-NO.                                | INO.   |
|---|---------------------------------------|--|--|--|
|   | la                                    | 50.06.0                                  | 101                                    |  |
| 8 |                                       | 50-04-0                                  | 01                                     |  |
|   | )                                     | 59.26.04                                 | C 1                                    |  |
| ĸ |                                       | 57.88.4                                  | R21                                    |  |
|   |                                       | 54.13.10                                 | P                                      |  |
|   | 1N 5818<br>47 uf<br>8 +3.3K<br>D-YYPE | 512 1H 5818<br>670 47 uf<br>5332 8 +3=3K | 59-26-0470 47 uf<br>57-88-4332 8 +3-3K | 01 50-04-0512 IM 5818 C1 59-26-0470 47 uf R21 57-88-4332 8 +3-3K |

Sal=Solid aluminium

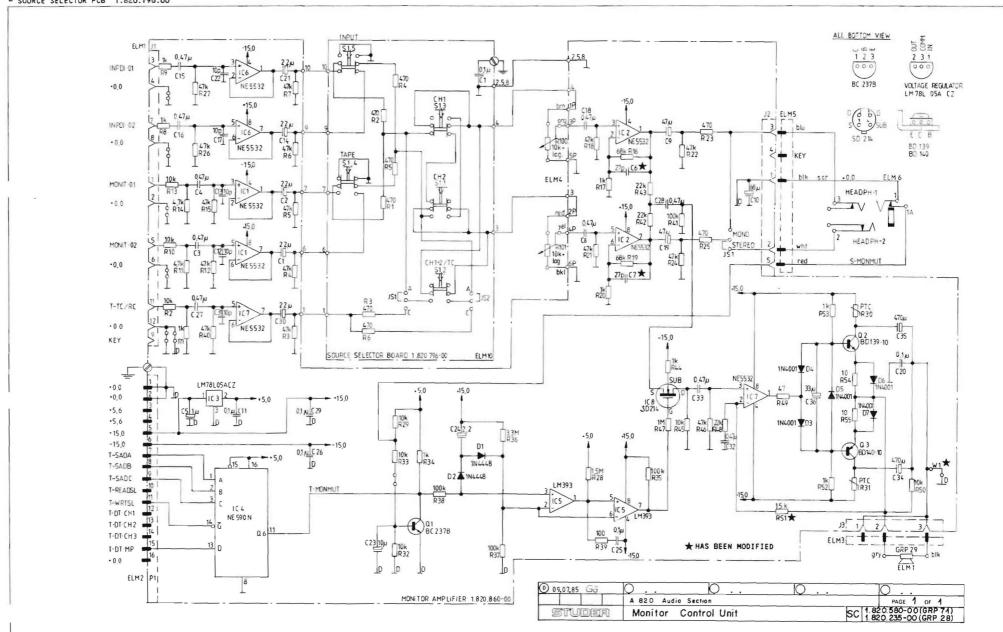
Manufacturer: ITT=Intermetall, Mot=Motorolo, Ph=Philips, St=Studer, Tl=Texas Instrument, TRM=TRM

\$ T U D E R (00) 84/05/03 ME HEAD ASSY IDENTIFIER BOARD 1.820.795.00 PAGE 1

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MONITOR CONTROL UNIT (TAPE TRANSP.) 1.820.235.00 GRP 28
MONITOR CONTROL UNIT (EXT.) 1.820.580.00 GRP 71
- MONITOR AMPLIFIER PCB "ESE" 1.820.860.00

- SOURCE SELECTOR PCB 1.820.796.00



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MONITOR CONTROL UNIT (TAPE TRANSP.) 1.820.235.00 GRP 28 MONITOR CONTROL UNIT (EXT.) 1.820.580.00 GRP 71 - SOURCE SELECTOR PCB 1.820.796.00 MONITOR CONTROL UNIT (TAPE TRANSP.) 1.820.235.00 GRP 28
MONITOR CONTROL UNIT (EXT.) 1.820.580.00 GRP 71
- MONITOR AMPLIFIER PCB "ESE" 1.820.860.00

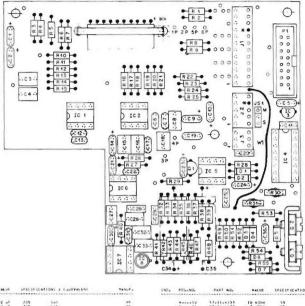
| ND. | POL-NO.                  | FART NG.  | YAL                     | .WI                      | 1011 | 1410.4 | TIONS / HOUSEAST | NAME . |
|-----|--------------------------|---|-------------------------|--------------------------|------|--------|------------------|--------|
|     | (001                     | \$9.00.0104   | 2-1                     | 40                       |      |        | **10             |        |
|     | J5001                    |   |                         |                          |      | nate   |                  |        |
|     | 001<br>003<br>004<br>005 | \$7.11.0071<br>\$7.11.0071<br>\$7.11.0071<br>\$7.11.0071<br>\$7.11.0071 | 470 0<br>470 0<br>470 0 | One<br>One<br>One<br>One |      |        |                  |        |

Note 2 - Pushbutton buttinesslatchings release each other 151-151-2-51-51151-a-51-5

PeliniPulyester

DE15 SAV12/11

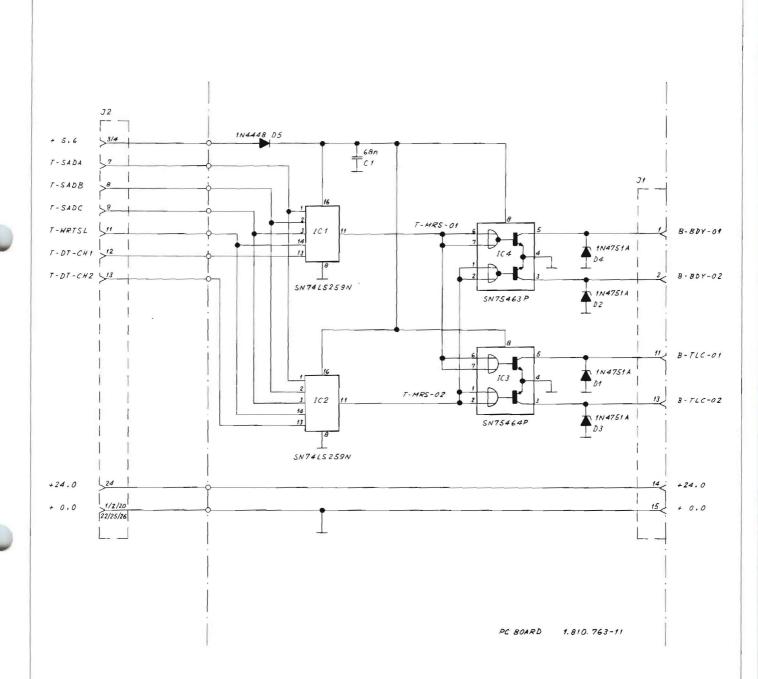
\$1 W D R R (00) B-/22/11 GAT SOURCE SHIELDER MOARD 1-870-700-00 FACE 1



|       |           |                          |               |                                | Brightenhylmal             |          |              |                         | -                            |  |  |
|-------|-----------|--------------------------|---------------|--------------------------------|----------------------------|----------|--------------|-------------------------|------------------------------|--|--|
|       |           |                          |               |                                |                            |          |              |                         |                              |  |  |
|       | P11-40.   | PART NO.                 | YAL           | PECIFICATION / LUCIVELEN       | Yatuf.                     | INO.     | P05-N0.      | SHR! NO.                | VALUE.                       | SPECIFICATIONS / THUS  |  |
|       |           |                          | 10 1          | 203. 541                       |                            |          | -            | 200 200 2000            | 49.5                         |  |  |
|       | C 2       | 57-28-1210               | 22 45         | 701 541                        | £2.                        |          | **********   | 3/-11101                | 10 KONA                      | 12   |  |
|       |           | 15-Day 1120              | 9.47 -        | 194 9119                       | pri.                       |          | *******      | 97-11-00/3              | AZ ADDO                      | 31   |  |
|       | £         | 59-Da-5474               | 9.47 wf       | 163 277                        |                            |          | H            | 37-11-5623              | 10 sine                      | 21   |  |
|       | Cerres    | 54-24-9104               | 1 40          | 223 641                        | Ph                         |          | S            | 2744-11434              | **7 * One                    | 11   |  |
| C271  | C         | 37-33-1100               | 10 65         | 701 60                         |                            |          | 4 15         | >7-11-5071              | of alline                    | 27   |  |
| Cur I |           | 39.34.2270               | 22 40         | 70T C#                         |                            |          | *****10      | 57-11-+603              | 66 siline                    | 21   |  |
| 1001  | \$ T      | W. In. 1100              | 10 pf         | 701 Le                         |                            |          | *******      | 57-11-5107              | 1 killing                    | 93   |  |
| 1031  | £         | 59.34.2270               | 27 pt         | 7103                           |                            |          | derests.     | 11-11-1-13              | of althou                    | 22   |  |
|       | £         | \$9.58-3576              | 5 . 4 Z . 4 P | 108 0111                       |                            |          | ********     | 57-11-5563              | 65 siles                     | (1)  |  |
|       | C         | 35.18.44.50              | 47 40         | 794 541                        | Ph                         |          | A            | 37-11-2107              | 1 allton                     | 21   |  |
|       | 1 10      | 17.20-0040               | 0.6 46        | 243 241                        | **                         |          | Accesti      | 97-11-0073              | AT BONK                      | 21   |  |
|       | C 11      | 59-26-910+               | Bal uf        | 107 2 10                       |                            |          | Seconda      | 57-11-4471              | 47 ACRE                      | 31   |  |
|       | £         | VV-14-1107               | 10 10         | 7 to \$ 6 to                   |                            |          | A 23         | 57-11-4671              | ≥10 One                      | 74   |  |
|       | L 13      | 57.14.1100               | 10 p#         | 001 E+                         |                            |          | A 24         | 57-11-4471              | ef allhe                     | 51   |  |
|       | Learnets. | 59.25.1220               | 22 48         | 203 541                        | Ph                         |          | A /3         | 17.11.4471              | *70 Ohn                      | 22   |  |
|       | C 15      | 39.50.5474               | Geal we       | TOR PURE                       |                            |          | Acres 64     | 31.11.4413              | 47 Affinia                   | 51   |  |
|       | ito       | 59.20.3076               | 0.47 46       | 101 6116                       |                            |          | A 27         | 31-11-4411              | 47 silne                     | 52   |  |
|       | L 11      | 14-14-1100               | 120 98        | 791 24                         |                            |          | ******       | 57-11-5155              | 1.5 Hebren                   | 51   |  |
|       | C1#       | 19.30.5474               | Badd Mr       | 141 2119                       | 94                         |          | ******       | 3/-11101                | 10 KOne                      | 51   |  |
|       | L 1 9     | 59-75-0470               | 47 ==         | 102 9 19                       | Ph.                        |          | ***********  | 37-22-1151              | 18 Ohe                       | Pff See note 1   |  |
|       | C 70      | 59-05-2129               | Bet of        |                                | 9h                         |          | *******      | 57.92-1151              | III Stee                     | PTC See motor 3  |  |
|       | C ??      | 51-70-1220               | 22 =4         | 201 541                        | 70                         |          | ******       | 57-11-5123              | 10 A010                      | 32   |  |
|       |           | 59-14-1102               | 10.01         | 701 541                        | per,                       |          | ******       | 57-14123                | LG NONe                      |  |  |
|       | £         | 37-20-2100               | 6-6 40        | CID Set                        | 90                         |          | *******      | 37-11-5107              | 1 ADDRESS                    | 31   |  |
|       |           | 27-00-4104               |               | 145 PE 19                      | P.11                       |          | A            |                         |                              |  |  |
|       | L 25      | 29-70-0104               | 0-1 of        | 150 8-12                       |                            |          | 1 17         | 57-11-5325              | 3-3 Miles                    | 22   |  |
|       | 1         | 39.00.391                | 0.47 of       | 102 0120                       |                            |          | * * * * * 10 | 57-11-199               | LOG HONe                     | >1   |  |
|       | i 29      | 39-20-30/4               | 0.47 of       | 6.0% 26.839                    |                            |          | ***** 19     | 57-11-5191              | 100 Dbs                      | 31   |  |
|       | 6 **** 29 | 57-Se-2104               | H-1 45        | 143 9:19                       |                            |          | *********    | 37-11-4473              | 47 allma                     | 31   |  |
|       | £ 10      | \$7.2n-1243              | 72 45         | 745 341                        | **                         |          |              | 37-11tile               | 100 alles                    | 31   |  |
|       | Levell    | 59.15-1107               | 10 ,1         | 247 Ex                         |                            |          | ******       | 57-11-5223              | 22 militar                   | 11   |  |
|       | £         | 99-0m-9674               | 0.47 46       | 193 7 18                       |                            |          | ******       | 57-11-9223              | 22 w0mm                      | 12   |  |
|       | Secret)   | 29, 14, 34 74            | 2+47 44       | 141 5117                       |                            |          | A 44         | \$7-11-4107             | 1 a.Dha                      | 33   |  |
|       | S         | 37.23.1971               | After of      | 203 loc. ol                    |                            |          | A 42         | 27-11-1103              | 10 some                      | 52   |  |
|       | L 15      | 14.25.3671               | 4 10 al       | 295 1974 13                    |                            |          | *****        | 37-11-9473              | 47 worse                     | 33   |  |
|       | L 10      | 34. Cary 185             | 3.0 wf        | tes hal                        | **                         |          | A            | 57-11-6105              | L. Million                   | 101  |  |
|       | *****     |                          | 100           | 1000                           |                            |          | ******       | 57-11-5723              | ZZ william                   | 21   |  |
|       | A         | 24.24.4129               | 155558        |                                | I ff a Pina ber ha f f     |          | 8            | 51-11-4473              | 47 3hm                       | 51   |  |
|       | *******   | 44.74.7527               | 150001        |                                | 1 ft aller berself!        |          | See. 54      | 37-11-4103              | 10 10hm                      | 21   |  |
|       |           | 20. 3. 4127              | 354904        | tradula fraduta targue         | Feedbarren but             | 4,623    | A 1          | 57-11104                | 100 killing                  | 22   |  |
|       |           | 90. 14. 4577             | 100001        | themale themale themse         | * K+ w X + " 10 C + 3 to 5 | 1001     | ******       | 57-11-4153              | to within                    | 51   |  |
|       | U         | Title mail for           | Design        | (N=0./: 17+0.1: 15+0.4         | Variation of               |          | ******       | 57-11-4402              | 1 xCro                       | 31   |  |
|       |           | Whaterall!               | 1899021       | thebute thebute thebu-         | Agenta that a feet         |          | *******      | 57-11-5102              | a william                    | 51   |  |
|       | ********  | 50. 15. 214/             | LANGEY        | physical fraction fraction     | *col-*ut-lo!               |          | *****        | 57-11-4100              | to one                       | 51   |  |
|       |           |                          |               |                                |                            |          | ******       | 51-11-4100              | 10 Other                     | 51   |  |
|       | 151       | \$5. 19.2500             | 56.35-525     | ANST \$214 SYSTEM              | 100-31-31-1                |          |              |                         |                              |  |  |
|       | 15        | 10.39.214                | 363337N       | 4935 Idon 35 Idon              | 64 mm                      | 644.1    | ******       | 1.010-017-05            | Br sidipe                    |  |  |
|       | 15        | 10.10.2207<br>20.12.2107 | ENTRE OFFICE  | MATRICIPA ENC                  | 51.0                       | A 144 1  |              | and the common state of | Accordance to the control of | and the second section of the second   |  |
|       | 25        | 90-21-2107               | AMPRI T       | L-1941F                        | 72.11                      | 1411     | BA-21-07 -   | ath ataution of         | Lautspeaker                  | emplifier pass and   |  |
|       | 1         | 20-29-2101               | 21.32267      | \$500 A714 50 K =0             | 10.00.500                  | 12070    | AGE 10 C. Da | pensation of he         | edium well (                 | ies (ce. ci).  |  |
|       | 157       | 17.79.0131               | N. 333/Y      | 48503734 503400                | 14.4.4.517                 | 2007     | Contract of  | t pant Studer W         | at ann                       | e.   |  |
|       | 15        | 17-11-01-01-0            | to give of    | dir. (15                       | en.s.c                     | 100      |              |                         | G . 2422 U25                 |  |  |
|       |           |                          | 11. 11. 11    | 210.114                        |                            |          | nd since     | Transfer No.            | 100-10-1                     | 84301  |  |
|       | Januari.  | 54.11.1215               | st cost.      | Line AMP Mrs. 1-18 Jahrelle L. |                            |          | an read-     |                         | v - 1922 019                 |  |  |
|       | ******    | 24.71.0787               | 5 sunt.       | 1834 AMP 544 (41.589-1         |                            |          |              | A PART NO. 1            | at the same                  | 2001   |  |
|       | 1 1       | 10.71.0747               | 1 cons.       | 113: APP Nr 103-500-1          |                            | See Free |              | be W. Carribour         | Arts Buttade I               | W. 184 9 8 La 805 15   |  |
|       |           |                          |               | and the second of              |                            | No. To   | t - Miner    | 10 Mm /                 | 50 act. 600                  | 193 W. 1347 661 11515.   |  |
|       | Meres     |                          |               | See note 1                     |                            |          | 014-10       | SINTER BAY DE TO        | colored by to                | PARTECULAR TO THE PARTECULAR T |  |
|       | × 1       | 31100/                   | to come.      | See mate /                     |                            |          | 10 - MF      | . 57-19-25-E. F.        | selips ar- d                 | M7 265 11169.  |  |
|       | 3         |                          | at 211-1      | ME 557-7. ME 550-1             | 111.11                     | *0011    | of Tenarel   | Mirkl 4 100 Ppt         |                              |  |  |
|       |           | 10-12-24-64              | #01 19-12     | # 14 49 m = 0 4 5 m = 1        | Ph-114-11-10               |          |              | Studen St               | - 1-411-001                  | . 34.  |  |
|       | ,         | \$0.03.0450              | #1170-10      | 154040-0                       | Ph.5:0.11.10               | 241.0    |              | · featralytics #        | Identify France              |  |  |
|       | *         | 57-11147                 | 1 sine        | 20                             |                            | 5.45.15  | gist stom    | Ripe,                   | CO SERVICE CO.               |  |  |
|       | *******   | 37-11-101                | 19 101-       | 75                             |                            |          | of time at a | CONTRACTOR SERVICE      | m. 14 1.                     | seral instruments.   |  |
|       |           | 31-11-00/3               | AZ ADDRE      | \1                             |                            | 44.0     |              |                         |                              | Maytheon, besteacher.  |  |
|       | ******    | 57-11-5571               | 4.1 Affine    | 22                             |                            |          | - 7          | Discolatory' of         | Samuel Ad                    | Contrade towns   |  |
|       |           | 21-11-4-11               | of Alline     | 35                             |                            |          |              |                         |                              | weets. Instances   |  |
|       |           | >7-11-44/1               | 1.000         | 17                             |                            |          |              | C. Caracagantes V.      | Inte                         | and the same of th |  |
|       |           |                          |               |                                |                            |          |              |                         |                              |  |  |
|       | 4         | 26.11.2272               | al admir      | 33                             |                            | 141-     | 14 / D2// LT |                         |                              |  |  |
|       |           | 37-11-197                | 1 kOhe        | 51                             |                            |          |              | (B1) 45/95/37 SAS       |                              |  |  |

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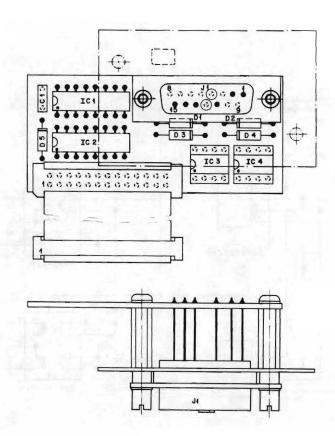
NOISE REDUCTION SYSTEM CONTROL PCB (OPTION) 1.810.763.81



| 22.04.83 | Buchegger   | A 840 Logic Section |    |        |        |      |   |      |
|----------|-------------|---------------------|----|--------|--------|------|---|------|
| STUDER   | Noise Reduc | tion System Control | SC | 1.840. | 763-84 | PAGE | 1 | OF 1 |

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NOISE REDUCTION SYSTEM CONTROL PCB (OPTION) 1.810.763.81



| HANUF.         | NT      | JIVALEN | / EQU  | TONS  | SPECIFICA | UE  | VAI |      | PART NO.   | POS-NO- | IND. |
|----------------|---------|---------|--------|-------|-----------|-----|-----|------|------------|---------|------|
|                |         |         |        | ce    | -20%.     | •   |     | 68   | 59-99-0205 | C0001   |      |
| ITT. Mat . Ph  | 1N4751A | 2430.   | 50.30. | BZVBS | BZX61C30. | Z   | v   | 30   | 50-04-1506 | 00001   |      |
| ITT . Mot . Ph |         |         |        |       |           | Z   | V   | 30   | 50-04-1506 | 2000-40 |      |
| ITT . Mot . Ph |         |         |        |       |           | Z   | V   | 30   | 50.04.1506 | 00003   |      |
| ITT . Mat . Ph |         |         |        |       |           | 2   | V   | 30   | 50.04.1506 | D 0004  |      |
| .Ph. Ses. II   |         |         |        | 0000  |           | 8   | 444 | 14   | 50.04.0125 | 00005   |      |
| Fc.Mot.TI      |         |         |        |       |           | 59N | LS  | SN74 | 50.06.0259 | 10.0001 |      |
| Fc.Mat.TI      |         |         |        |       |           | 59N | 15  | SN74 | 50.06.0259 | IC.0002 |      |
| MSC.TI         |         |         |        |       |           | 4P  | 540 | SNT  | 50-05-0204 | 10.0003 |      |
| NSC . TI       |         |         |        |       |           | 3 P | 546 | SNT  | 50-05-0203 | 16-0004 |      |
|                |         |         |        |       | See note  |     | cor | 15   | 54.02.0183 | J0001   |      |
|                |         |         |        |       | See note  | 1 . | cor | 26   | 54-14-5022 | J0002   |      |

Note 1 - Jack: TRW Nr. DA-15 S (Cannon
Note 2 - Jack: Yamaichi Nr. FAS-26-17
Burndy Nr. FRS-26 BD-7P
Connection cable: Studer Nr. L.810.749-2n0

Ce=Ceramic

NUFACTURER: Fc=Fairchild, ITT=Intermetall, Mot=Motorola, MSC=Mational Semiconductor Corp., Ph=Philips

ORIG 83/04/22

T U D E R (00) 83/04/22 PB NRS CONTROL BOAR

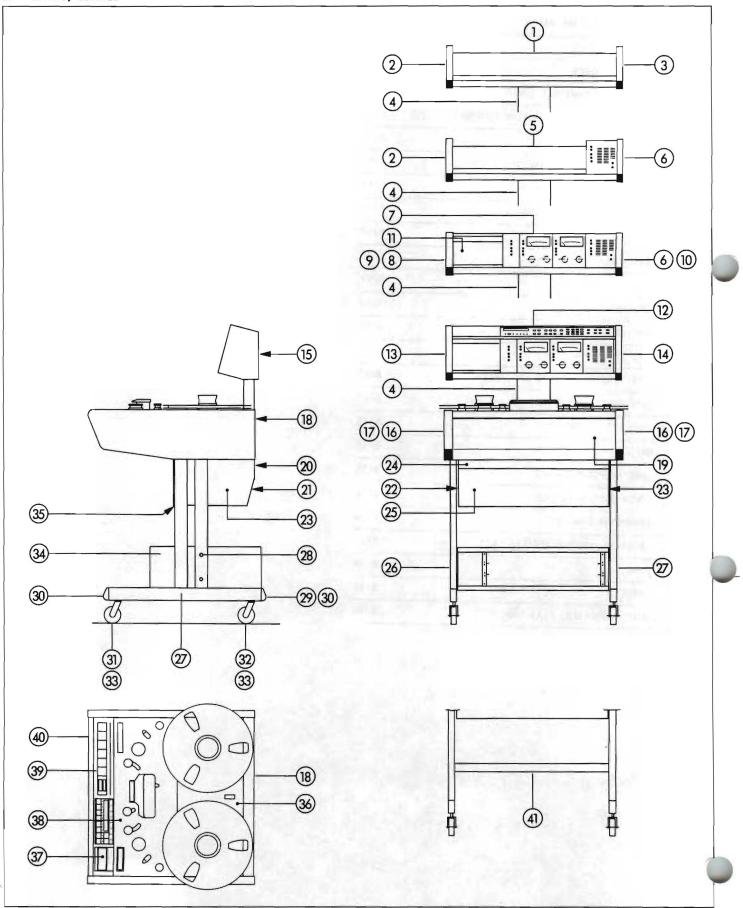
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|        |   |          |

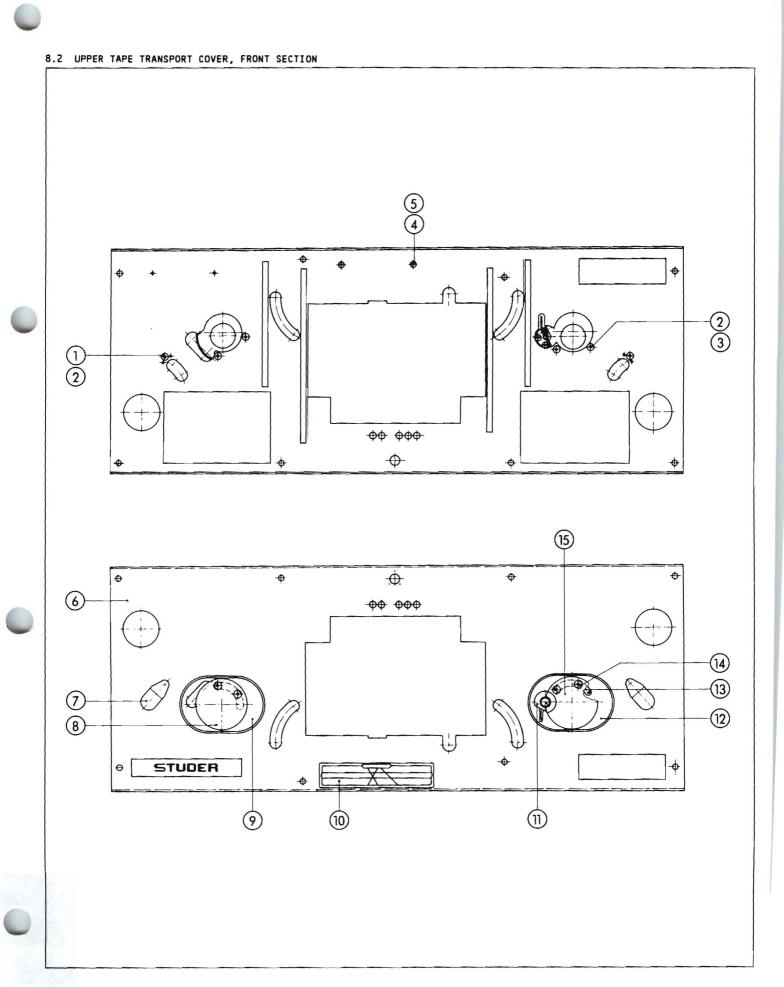
8.1 COVERS, CONSOLE



|    | OTY | ORDER NUMBER                 | PART NAME SPECIFICATION   |
|----|-----|------------------------------|---|
| 00 |     |                              |   |
| 01 | 1   | 1.820.572.00                 | Overbridge with shelf incl. pos. 02, 03, 04                                 |
| 02 | 1   | 1.820.572.01                 | Wooden side panel, overbridge left  |
| 03 | 1   | 1.820.572.02                 | Wooden side panel, overbridge right   |
| 04 | 1   |                              | Overbridge support compl.   |
|    | 2   | 21.53.0571<br>21.53.0559     |   |
|    | 6   |                              | Serrated lock washer  |
| 05 | 1   | 1.820.575.00                 |   |
|    |     |                              | speaker<br>incl. pos. 02, 04, 06  |
| 06 | 1   |                              | Wooden side panel, overbridge right   |
|    | 3   | married to the second of the | Allen screw M4x8<br>Fin washer  |
| 07 | 1   |                              |   |
| Ur | ,   | 1.820.550.00                 | Overbridge housing for VU-meters etc<br>incl. pos. 04, 06, 08 or 04, 09, 10 |
| 08 | 1   | 1.820.550.03                 | Wooden side panel, overbridge Left  |
|    | 3   |                              | Allen screw M4x8<br>Fin washer  |
|    |     |                              |   |
| 09 | 1   | 1.820.550.14<br>21.53.0455   | Black side panel, overbridge left<br>Allen screw M4x8                       |
|    | 3   | [                            | Fin washer  |
| 10 | 1   | 1.820.550.15                 | Black side panel, overbridge right  |
|    | 3   | 21.53.0455                   | Allen screw M4x8<br>Fin washer  |
| 11 | 1   | 1.820.550.10                 |   |
| or | 1   | 1.820.550.12                 | Shelf Long  |
|    |     | 1.010.025.21                 | Round head allen screw M3x6   |
| 12 | 1   | 1.058.007.00                 | TLS 4000 LCU supplementary housing incl. pos. 13, 14, 15                    |
| 13 | 1   | 1.058.007.01                 | Wooden side panel, overbridge left  |
| 14 | 1   | 1.058.007.02                 | Wooden side panel, overbridge right   |
| 15 | 1   | 1.058.019.00                 | Rear cover for TLS 4000 version   |
| 16 | 1   | 1.058.005.00                 | Wooden side panel, set left/right   |
| 17 | 1   | 1.058.010.00                 | Black side panel, set left/right  |
| 18 | 1   | 1.820.550.08                 |   |
| or | 1 5 | 1.820.090.12                 | Rear panel Round head allen screw M4x8                                      |
|    |     |                              |   |
| 19 | 10  | 1.820.901.00<br>1.010.007.21 | Tape transport cover bottom Round head allen screw M4x8                     |
| 20 | 1   | 1.820.500.06                 | Mounting bracket for conn. panels   |
| 20 | 4   | 1.010.034.21                 | Countersunk allen head screw  |
|    | 2   | 1.010.007.21                 | Round head allen screw M4x8   |
| 21 | 1 8 | 1.820.510.02                 |   |
|    |     |                              |   |
| 22 | 1   | 1.820.500.03                 | Side panel (amplifier bay) left   |

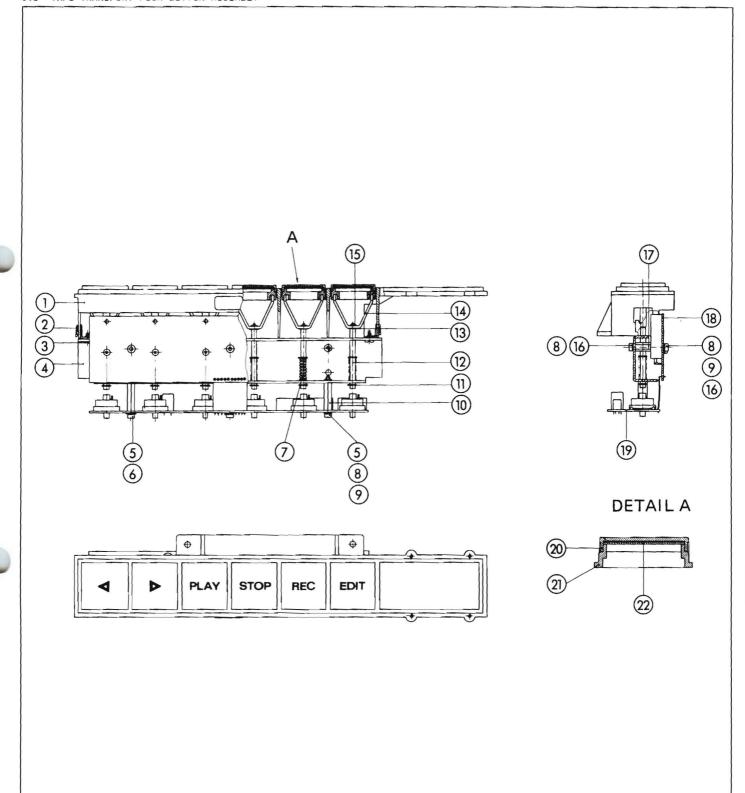
| 1  |     |                  |  |  |
|--|-----|------------------|--|--|
| 4  | 23  | 1                | 1.820.500.04   | Side panel (amplifier bay) right   |
| 1  | 24  | 4<br>1<br>1<br>1 | 1.010.034.21<br>54.24.0102<br>31.03.0110<br>73.01.0116<br>1.010.013.31                 | Countersunk allen head screw M4x8<br>Headphone socket<br>Plastic cover, round<br>Mechanical elapsed time counter<br>Plastic cover, rectangular   |
| or 1 1.058.017.00   Console Leg 840/900 mm   Left  | 25  | 1                | 1.820.903.00   | Hinged cover   |
| or         1         1.058.016.00 tonsole leg 840/900 mm         right console leg 900/960 mm         right right right right right right right right right 21.53.0621 Allen screw         M8x14           1         21.53.0621 Allen screw         M8x14           28         4         31.03.0106 Plastic cover           28         4         31.03.0106 Plastic plug         dome-shaped dome-shaped dome-shaped for TLS version, without pos.29           30         2         1.058.001.05 Plastic plug dome-shaped for TLS version, without pos.29           31         2         33.04.0202 Castor, with brake           32         2         33.04.0202 Castor, without brake           33         4         33.04.0202 Castor, without brake           34         1         1.058.004.00 Pedestal rack Allen screw Allen screw Mox16 Fin washer Filler panel, height 1 unit 1.918.002.00 Filler panel, height 2 units 1.918.003.00 Plastic panel, height 2 units 1.918.003.00 Plastic panel, height 3 units 1.918.003.00 Plastic panel, height 2 units 1.918.003.00 Plastic plug panel, height 2 units 1.918.003.00 Plastic plug panel, height 3 units 1.918.003.00 Plastic plug panel, height 4 unit 1.918.003.00 Plastic plug panel,  | or  | 1<br>1<br>1      | 1.058.015.00<br>1.058.017.00<br>21.53.0621<br>23.01.1084                               | Console leg 840/900 mm left Console leg 900/960 mm left Allen screw M8x14 Washer   |
| 29   2   1.038.880.01   Plastic plug   flat  | or  | 1<br>1<br>1      | 1.058.016.00<br>1.058.018.00<br>21.53.0621<br>23.01.1084                               | Console leg 840/900 mm right Console leg 900/960 mm right Allen screw M8x14 Washer   |
| 1.058.001.05   | 28  | 4                | 31.03.0106   | Plastic cover  |
| or 4 1.058.001.05 Plastic plug dome—shaped for TLS version, without pos.29  31 2 33.04.0203 Castor, with brake  32 2 33.04.0202 Castor, without brake  33 4 33.04.0103 Floor slide, without pos. 31 and 32  34 1 1.058.004.00 Pedestal rack Allen screw M6x16 4 21.53.0572 Allen screw M6x16 1.918.001.00 Filler panel, height 1 unit 1918.002.00 Filler panel, height 2 units Filler panel, height 3 units Pan head screw M6x16 21.99.0164 Pan head screw M6x16  35 1 1.820.904.00 PCB carrier  36 1 1.820.111.00 Upper tape transport cover, rear section, 14" reels 1 1.820.113.00 Upper tape transport cover, rear section, 12" reels 7 21.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built—in monitor speaker (refer to section, 2.2)  1 1.820.112.00 Upper tape transport cover, front section, compl., for versions with built—in monitor speaker (refer to section 8.2)   | 29  | 2                | 1.038.880.01   | Plastic plug flat  |
| 33   | ) ) |                  | 1.058.001.05<br>1.058.001.05   | Plastic plug dome-shaped   |
| 33 4 33.04.0103 Floor slide, without pos. 31 and 32  34 1 1.058.004.00 Pedestal rack 4 21.53.0572 Allen screw M6x16 5 24.16.1060 Fin washer 1.918.001.00 Filler panel, height 1 unit 1.918.002.00 Filler panel, height 2 units 1.918.003.00 Pedestal rack 4 21.99.0164 Priller panel, height 3 units Pan head screw M6x16  35 1 1.820.904.00 PCB carrier  36 1 1.820.111.00 Upper tape transport cover, rear section, 14" reels 1 1.820.113.00 Upper tape transport cover, rear section, 12" reels 7 21.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section 8.2) 1 1.820.112.00 Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (refer to section 8.2)  | 31  | 2                | 33.04.0203   | Castor, with brake   |
| 1  | 32  | 2                | 33.04.0202   | Castor, without brake  |
| 4 21.53.0572 Allen screw M6x16 24.16.1060 Fin washer 1.918.001.00 1.918.002.00 Filler panel, height 1 unit 1.918.003.00 21.99.0164 Pan head screw M6x12 21.99.0167 Pan head screw M6x16  35 1 1.820.904.00 PCB carrier  36 1 1.820.111.00 Upper tape transport cover, rear section, 14" reels 1 1.820.113.00 Upper tape transport cover, rear section, 12" reels 7 21.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section 8.2) Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (refer to section 8.2)   | 33  | 4                | 33.04.0103   | Floor slide, without pos. 31 and 32  |
| 1 1.820.111.00 Upper tape transport cover, rear section, 14" reels 1 1.820.113.00 Upper tape transport cover, rear section, 12" reels 2 1.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section, compl., for versions with built-in monitor speaker (refer to section, compl., for versions with built-in monitor speaker (refer to section 8.2)  | 34  | 4                | 21.53.0572<br>24.16.1060<br>1.918.001.00<br>1.918.002.00<br>1.918.003.00<br>21.99.0164 | Allen screw M6x16  Fin washer  Filler panel, height 1 unit  Filler panel, height 2 units  Filler panel, height 3 units  Pan head screw M6x12   |
| section, 14" reels  1 1.820.113.00 Upper tape transport cover, rear section, 12" reels  7 21.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section, compl., for versions with built-in monitor speaker (refer to section, compl., for versions with built-in monitor speaker (refer to section 8.2)   | 35  | 1                | 1.820.904.00   | PCB carrier  |
| 1 1.820.113.00 Upper tape transport cover, rear section, 12" reels 7 21.51.8455 Round head allen screw M4x8 37 1 1.820.237.00 Hinged cover compl. 38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section, compl., for versions with section, compl., for versions with built-in monitor speaker (refer to section, compl., for versions with built-in monitor speaker (refer to section 8.2)   | 36  | 1                | 1.820.111.00   | The state of the s |
| 7 21.51.8455 Round head allen screw M4x8  37 1 1.820.237.00 Hinged cover compl.  38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without out built-in monitor speaker (refer to section 8.2)  1 1.820.112.00 Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (refer to section 8.2)  |     | 1                | 1.820.113.00   | Upper tape transport cover, rear   |
| 38 1 1.820.110.00 Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (refer to section 8.2) Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (refer to section 8.2)   |     | 7                | 21.51.8455   |  |
| section, compl., for versions without built-in monitor speaker (refer to section 8.2)  1 1.820.112.00 Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (refer to section 8.2)   | 37  | 1                | 1.820.237.00   | Hinged cover compl.  |
| The state of the s | 38  |                  |  | section, compl., for versions with— out built—in monitor speaker (refer to section 8.2) Upper tape transport cover, front section, compl., for versions with built—in monitor speaker (refer to  |
|  |     | 7                | 21.51.8455   | POTOS PALAM SANDARA SANDARA  |

| _  | _  |              |                                      |
|----|----|--------------|--------------------------------------|
| 39 | 1  | 1.820.236.00 | Push button rail                     |
|    | 2  | 21.51.8455   | Round head allen screw M4x8          |
|    | 1  | 1.820.238.00 | Push button/display PCB compl., con- |
|    |    |              | taining all components marked with   |
|    | 1  | 1.820.767.00 | Push button/display PCB              |
|    | 1  | 1.820.232.01 | Push button housing                  |
|    |    | 1.810.300.05 | Damping strip, for 2 push buttons    |
|    | 1  | 1.820.232.03 | Damping strip, for 8 push buttons    |
|    | 10 | 1.011.210.01 | Push button                          |
|    |    |              | Self-adhesive labels: Section 8.23   |
|    | 10 | 1.010.202.37 | Pressure spring                      |
|    | 1  | 1.820.232.02 | Filter screen red                    |
|    | 4  | 55.03.0360   | Key cap blue                         |
|    | 1  | 55.03.0362   | Key cap red                          |
|    | 10 | 55.03.0363   | Key cap dark grey                    |
|    | 4  | 55.03.0370   | Insert blue                          |
|    | 1  | 55.03.0373   | Insert red                           |
|    | 10 | 55.03.0374   | Insert white                         |
|    | 15 | 1.820.090.22 |                                      |
|    | 1  | 1.820.090.25 | Label set (Labels: see Section 8.23) |
|    | 1  | 1.820.090.35 | Label set (Labels: see Section 8.23) |
| 40 | 1  | 1.820.905.00 | Leather hand rest                    |
|    | 3  |              | Allen screw M4x8                     |
|    | 3  | 24.16.1040   | Fin washer                           |
| 41 | 1  | 1.058.003.00 | Traverse                             |
|    | 2  | 21.53.0572   | Allen screw Móx16                    |
|    | 2  | 24.16.1060   |                                      |



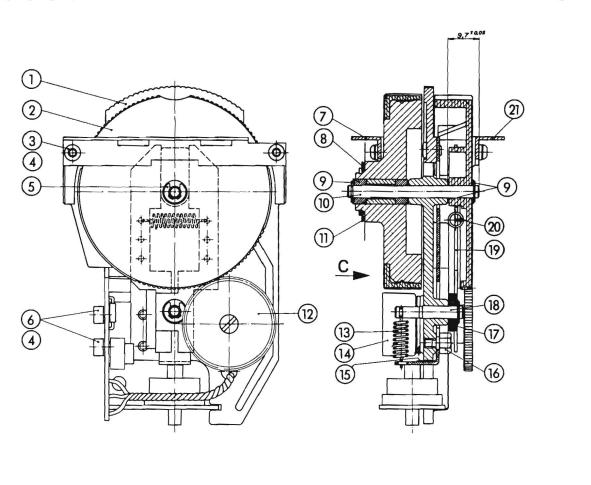
|    | Q   | TY | ORDER NUMBER                 | PART NAME SPECIFICATION  |
|----|-----|----|------------------------------|--|
|    | 1   |    | 1.820.110.00                 | Upper tape transport cover, front section, compl., for versions without built-in monitor speaker (* = not included)      |
|    |     | 1  | 1.820.112.00                 | Upper tape transport cover, front section, compl., for versions with built-in monitor speaker (* = not included)         |
|    | 7   | ۲7 | 21.51.8455                   | Round head allen screw M4x8  |
| 01 | 2   | 2  | 21.53.0455                   | Allen screw M4x8   |
| 02 | 6   | 6  | 24.16.1040                   | Fin washer   |
| 03 | 4   | 4  | 21.53.0457                   | Allen screw M4x12  |
| 04 | 2   | 2  | 21.53.0354                   | Allen screw M3x6   |
| 05 | 2   | 2  | 24.16.1030                   | Fin washer   |
| 06 | 1   |    | 1.820.906.00                 | Upper tape transport cover, front section, for versions without built-   |
|    |     | 1  | 1.820.907.00                 | in monitor speaker<br>Upper tape transport cover, front<br>section, for versions <u>with</u> built-in<br>monitor speaker |
| 07 | 2   | 2  | 1.820.908.00                 | Cover for tape tension sensor  |
| 08 | 1   | 1  | 1.820.110.05                 | Cover for prestabilizer roller   |
| 09 | 1   | 1  | 1.820.110.03                 | Cover plate for tape end sensor  |
| 10 | 1   | 1  | 1.820.110.18<br>1.820.110.12 | Splicing block 1/4" Splicing block 1/2"  |
| 11 | 1   | 1  | 1.820.110.08                 | Protection cover for tape scissors   |
| 12 | 1   | 1  | 1.820.110.04                 | Cover plate for tape scissors  |
| 13 | 2 2 | 2  |                              | Cover support 1/4" or 1/2"<br>Extension 1/2"   |
| 14 | 44  | 4  | 1.010.036.21<br>1.010.040.21 | Spec. screw (1/4") M4x14<br>Spec. screw (1/2") M4x20   |
| 15 | 1   | 1  | 1.820.110.06<br>1.820.110.15 |  |
|    |     |    | 1.820.110.13                 | Adapter for sliding splicing block over LCD  |
|    | 1   | 1  | 1.820.909.00                 | Slot cover compl. left   |
|    | 1   | 1  | 1.820.910.00                 | Slot cover compl. right  |

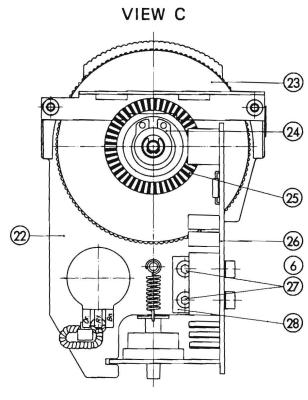
## 8.3 TAPE TRANSPORT PUSH BUTTON ASSEMBLY



| 1 1.820.240.00 Push button unit (* = not included)  2* 21.53.0456 Allen screw M4x10  2* 24.16.1040 Fin washer  01 1 1.820.240.03 Push button support  02 2 22.16.2501 Clip—on nut  03 2 20.21.7355 Cross=recessed button head self tapping screw  04 1 1.820.240.01 Push button guide bracket  05 4 21.53.0354 Allen screw M3x6  06 1 24.16.2030 Serrated lock washer  07 6 1.080.260.12 Pressure spring  08 8 24.16.1030 Fin washer  09 5 23.01.1032 Washer  10 3 1.010.131.27 Hex stud bolt  11 12 24.16.3032 Circlip  12 6 1.820.240.02 Push button shaft  13 6 1.010.032.23 Washer (PTFE)  14 6 1.080.260.09 Push button holder  15 6 24.16.3019 Circlip  16 6 21.53.0355 Allen screw M3x8  17 3 1.010.034.27 Hex stud bolt  18 1 1.820.766.00 Tape deck indicator PCB  19 1 1.820.769.00 Tape deck push button PCB  20 6 1.080.260.03 Push button cover  21 6 1.080.260.09 Push button body  22 6 1.080.260.19 Diffusing screen  1 1.080.260.17 Transparent label EDIT  1 1.080.260.16 Transparent label STOF  1 1.080.260.15 Transparent label REC   | _  |     |              |  |
|--|----|-----|--------------|--|
| 2*       21.53.0456       Allen screw       M4x10         2*       24.16.1040       Fin washer         01       1       1.820.240.03       Push button support         02       2       22.16.2501       Clip-on nut         03       2       20.21.7355       Cross-recessed button head self tapping screw         04       1       1.820.240.01       Push button guide bracket         05       4       21.53.0354       Allen screw       M3x6         06       1       24.16.2030       Serrated lock washer         07       6       1.080.260.12       Pressure spring         08       8       24.16.1030       Fin washer         09       5       23.01.1032       Washer         10       3       1.010.131.27       Hex stud bolt         11       12       24.16.3032       Circlip         12       6       1.820.240.02       Push button shaft         13       6       1.010.032.23       Washer (PTFE)         14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8     <  |    | QTY |              |  |
| 2*         24.16.1040         Fin washer           01         1         1.820.240.03         Push button support           02         2         22.16.2501         Clip-on nut           03         2         20.21.7355         Cross-recessed button head self tapping screw           04         1         1.820.240.01         Push button guide bracket           05         4         21.53.0354         Allen screw         M3x6           06         1         24.16.2030         Serrated lock washer           07         6         1.080.260.12         Pressure spring           08         8         24.16.1030         Fin washer           09         5         23.01.1032         Washer           10         3         1.010.131.27         Hex stud bolt           11         12         24.16.3032         Circlip           12         6         1.820.240.02         Push button shaft           13         6         1.010.032.23         Washer (PTFE)           14         6         1.080.260.09         Push button holder           15         6         24.16.3019         Circlip           16         6         21.53.0355         Allen screw <t< td=""><td></td><td>1</td><td>1.820.240.00</td><td>Push button unit (* = not included)</td></t<> |    | 1   | 1.820.240.00 | Push button unit (* = not included)  |
| 01 1 1.820.240.03 Push button support 02 2 22.16.2501 Clip-on nut 03 2 20.21.7355 Cross-recessed button head self tapping screw 04 1 1.820.240.01 Push button guide bracket 05 4 21.53.0354 Allen screw M3x6 06 1 24.16.2030 Serrated lock washer 07 6 1.080.260.12 Pressure spring 08 8 24.16.1030 Fin washer 09 5 23.01.1032 Washer 10 3 1.010.131.27 Hex stud bolt 11 12 24.16.3032 Circlip 12 6 1.820.240.02 Push button shaft 13 6 1.010.032.23 Washer (PTFE) 14 6 1.080.260.09 Push button holder 15 6 24.16.3019 Circlip 16 6 21.53.0355 Allen screw M3x8 17 3 1.010.034.27 Hex stud bolt 18 1 1.820.766.00 Tape deck indicator PCB 19 1 1.820.769.00 Tape deck push button PCB 20 6 1.080.260.02 Push button body 21 6 1.080.260.03 Push button body 22 6 1.080.260.019 Diffusing screen 1 1.080.260.18 Transparent label EDIT 1 1.080.260.17 Transparent label REC  |    | 2*  | 21.53.0456   | Allen screw M4x10  |
| 02         2         22.16.2501         Clip-on nut           03         2         20.21.7355         Cross-recessed button head self tapping screw           04         1         1.820.240.01         Push button guide bracket           05         4         21.53.0354         Allen screw         M3x6           06         1         24.16.2030         Serrated lock washer           07         6         1.080.260.12         Pressure spring           08         8         24.16.1030         Fin washer           09         5         23.01.1032         Washer           10         3         1.010.131.27         Hex stud bolt           11         12         24.16.3032         Circlip           12         6         1.820.240.02         Push button shaft           13         6         1.010.032.23         Washer (PTFE)           14         6         1.080.260.09         Push button holder           15         6         24.16.3019         Circlip           16         6         21.53.0355         Allen screw         M3x8           17         3         1.010.034.27         Hex stud bolt           18         1         1.820.766.00   |    | 2*  | 24.16.1040   | Fin washer   |
| 03       2       20.21.7355       Cross-recessed button head self tapping screw         04       1       1.820.240.01       Push button guide bracket         05       4       21.53.0354       Allen screw       M3x6         06       1       24.16.2030       Serrated lock washer         07       6       1.080.260.12       Pressure spring         08       8       24.16.1030       Fin washer         09       5       23.01.1032       Washer         10       3       1.010.131.27       Hex stud bolt         11       12       24.16.3032       Circlip         12       6       1.820.240.02       Push button shaft         13       6       1.010.032.23       Washer (PTFE)         14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.   | 01 | 1   | 1.820.240.03 | Push button support  |
| tapping screw  04  | 02 | 2   | 22.16.2501   | Clip-on nut  |
| 05         4         21.53.0354         Allen screw         M3x6           06         1         24.16.2030         Serrated lock washer           07         6         1.080.260.12         Pressure spring           08         8         24.16.1030         Fin washer           09         5         23.01.1032         Washer           10         3         1.010.131.27         Hex stud bolt           11         12         24.16.3032         Circlip           12         6         1.820.240.02         Push button shaft           13         6         1.010.032.23         Washer (PTFE)           14         6         1.080.260.09         Push button holder           15         6         24.16.3019         Circlip           16         6         21.53.0355         Allen screw         M3x8           17         3         1.010.034.27         Hex stud bolt           18         1         1.820.766.00         Tape deck push button PCB           19         1         1.820.769.00         Tape deck push button PCB           20         6         1.080.260.03         Push button body           21         6         1.080.260.19  | 03 | 2   | 20.21.7355   | TO BE SECURED TO THE COURT OF T |
| 06       1       24.16.2030       Serrated lock washer         07       6       1.080.260.12       Pressure spring         08       8       24.16.1030       Fin washer         09       5       23.01.1032       Washer         10       3       1.010.131.27       Hex stud bolt         11       12       24.16.3032       Circlip         12       6       1.820.240.02       Push button shaft         13       6       1.010.032.23       Washer (PTFE)         14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.766.00       Tape deck push button PCB         20       6       1.080.260.03       Push button body         21       6       1.080.260.09       Push button body         22       6       1.080.260.18       Transparent label       EDIT         1       1.080.260.16       Transparent label  | 04 | 1   | 1.820.240.01 | Push button guide bracket  |
| 07       6       1.080.260.12       Pressure spring         08       8       24.16.1030       Fin washer         09       5       23.01.1032       Washer         10       3       1.010.131.27       Hex stud bolt         11       12       24.16.3032       Circlip         12       6       1.820.240.02       Push button shaft         13       6       1.010.032.23       Washer (PTFE)         14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button body         21       6       1.080.260.09       Diffusing screen         1       1.080.260.17       Transparent label       EDIT         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY  | 05 | 4   | 21.53.0354   | Allen screw M3x6   |
| 08       8       24.16.1030 Fin washer         09       5       23.01.1032 Washer         10       3       1.010.131.27 Hex stud bolt         11       12       24.16.3032 Circlip         12       6       1.820.240.02 Push button shaft         13       6       1.010.032.23 Washer (PTFE)         14       6       1.080.260.09 Push button holder         15       6       24.16.3019 Circlip         16       6       21.53.0355 Allen screw       M3x8         17       3       1.010.034.27 Hex stud bolt         18       1       1.820.766.00 Tape deck indicator PCB         19       1       1.820.769.00 Tape deck push button PCB         20       6       1.080.260.03 Push button cover         21       6       1.080.260.09 Diffusing screen         1       1.080.260.19 Transparent label       EDIT         1       1.080.260.10 Transparent label       REC         1       1.080.260.15 Transparent label       PLAY   | 06 | 1   | 24.16.2030   | Serrated lock washer   |
| 09       5       23.01.1032       Washer         10       3       1.010.131.27       Hex stud bolt         11       12       24.16.3032       Circlip         12       6       1.820.240.02       Push button shaft         13       6       1.010.032.23       Washer (PTFE)         14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button cover         21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 07 | 6   | 1.080.260.12 | Pressure spring  |
| 10 3 1.010.131.27 Hex stud bolt  11 12 24.16.3032 Circlip  12 6 1.820.240.02 Push button shaft  13 6 1.010.032.23 Washer (PTFE)  14 6 1.080.260.09 Push button holder  15 6 24.16.3019 Circlip  16 6 21.53.0355 Allen screw M3x8  17 3 1.010.034.27 Hex stud bolt  18 1 1.820.766.00 Tape deck indicator PCB  19 1 1.820.769.00 Tape deck push button PCB  20 6 1.080.260.03 Push button cover  21 6 1.080.260.02 Push button body  22 6 1.080.260.19 Diffusing screen  1 1.080.260.17 Transparent label EDIT  1 1.080.260.16 Transparent label REC  1 1.080.260.15 Transparent label PLAY   | 08 | 8   | 24.16.1030   | Fin washer   |
| 11 12 24.16.3032 Circlip 12 6 1.820.240.02 Push button shaft 13 6 1.010.032.23 Washer (PTFE) 14 6 1.080.260.09 Push button holder 15 6 24.16.3019 Circlip 16 6 21.53.0355 Allen screw M3x8 17 3 1.010.034.27 Hex stud bolt 18 1 1.820.766.00 Tape deck indicator PCB 19 1 1.820.769.00 Tape deck push button PCB 20 6 1.080.260.03 Push button cover 21 6 1.080.260.02 Push button body 22 6 1.080.260.19 Diffusing screen 1 1.080.260.18 Transparent label EDIT 1 1.080.260.17 Transparent label REC 1 1.080.260.16 Transparent label REC   | 09 | 5   | 23.01.1032   | Washer   |
| 12 6 1.820.240.02 Push button shaft  13 6 1.010.032.23 Washer (PTFE)  14 6 1.080.260.09 Push button holder  15 6 24.16.3019 Circlip  16 6 21.53.0355 Allen screw M3x8  17 3 1.010.034.27 Hex stud bolt  18 1 1.820.766.00 Tape deck indicator PCB  19 1 1.820.769.00 Tape deck push button PCB  20 6 1.080.260.03 Push button cover  21 6 1.080.260.02 Push button body  22 6 1.080.260.19 Diffusing screen  1 1.080.260.18 Transparent label EDIT  1 1.080.260.17 Transparent label REC  1 1.080.260.15 Transparent label REC   | 10 | 3   | 1.010.131.27 | Hex stud bolt  |
| 13 6 1.010.032.23 Washer (PTFE)  14 6 1.080.260.09 Push button holder  15 6 24.16.3019 Circlip  16 6 21.53.0355 Allen screw M3x8  17 3 1.010.034.27 Hex stud bolt  18 1 1.820.766.00 Tape deck indicator PCB  19 1 1.820.769.00 Tape deck push button PCB  20 6 1.080.260.03 Push button cover  21 6 1.080.260.02 Push button body  22 6 1.080.260.19 Diffusing screen  1 1.080.260.18 Transparent label EDIT  1 1.080.260.17 Transparent label REC  1 1.080.260.15 Transparent label PLAY   | 11 | 12  | 24.16.3032   | Circlip  |
| 14       6       1.080.260.09       Push button holder         15       6       24.16.3019       Circlip         16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button cover         21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 12 | 6   | 1.820.240.02 | Push button shaft  |
| 15 6 24.16.3019 Circlip 16 6 21.53.0355 Allen screw M3x8 17 3 1.010.034.27 Hex stud bolt 18 1 1.820.766.00 Tape deck indicator PCB 19 1 1.820.769.00 Tape deck push button PCB 20 6 1.080.260.03 Push button cover 21 6 1.080.260.02 Push button body 22 6 1.080.260.19 Diffusing screen 1 1.080.260.18 Transparent label EDIT 1 1.080.260.17 Transparent label REC 1 1.080.260.15 Transparent label REC   | 13 | 6   | 1.010.032.23 | Washer (PTFE)  |
| 16       6       21.53.0355       Allen screw       M3x8         17       3       1.010.034.27       Hex stud bolt         18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button cover         21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       REC         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 14 | 6   | 1.080.260.09 | Push button holder   |
| 17       3       1.010.034.27 Hex stud bolt         18       1       1.820.766.00 Tape deck indicator PCB         19       1       1.820.769.00 Tape deck push button PCB         20       6       1.080.260.03 Push button cover         21       6       1.080.260.02 Push button body         22       6       1.080.260.19 Diffusing screen         1       1.080.260.18 Transparent label       EDIT         1       1.080.260.17 Transparent label       STOP         1       1.080.260.16 Transparent label       REC         1       1.080.260.15 Transparent label       PLAY   | 15 | 6   | 24.16.3019   | Circlip  |
| 18       1       1.820.766.00       Tape deck indicator PCB         19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button cover         21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       STOP         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 16 | 6   | 21.53.0355   | Allen screw M3x8   |
| 19       1       1.820.769.00       Tape deck push button PCB         20       6       1.080.260.03       Push button cover         21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       STOP         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 17 | 3   | 1.010.034.27 | Hex stud bolt  |
| 20 6 1.080.260.03 Push button cover  21 6 1.080.260.02 Push button body  22 6 1.080.260.19 Diffusing screen  1 1.080.260.18 Transparent label EDIT  1 1.080.260.17 Transparent label STOP  1 1.080.260.16 Transparent label REC  1 1.080.260.15 Transparent label PLAY   | 18 | 1   | 1.820.766.00 | Tape deck indicator PCB  |
| 21       6       1.080.260.02       Push button body         22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       STOP         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY   | 19 | 1   | 1.820.769.00 | Tape deck push button PCB  |
| 22       6       1.080.260.19       Diffusing screen         1       1.080.260.18       Transparent label       EDIT         1       1.080.260.17       Transparent label       STOP         1       1.080.260.16       Transparent label       REC         1       1.080.260.15       Transparent label       PLAY  | 20 | 6   | 1.080.260.03 | Push button cover  |
| 1 1.080.260.18 Transparent label EDIT 1 1.080.260.17 Transparent label STOP 1 1.080.260.16 Transparent label REC 1 1.080.260.15 Transparent label PLAY   | 21 | 6   | 1.080.260.02 | Push button body   |
| 1 1.080.260.17 Transparent label STOP 1 1.080.260.16 Transparent label REC 1 1.080.260.15 Transparent label PLAY   | 22 | 6   | 1.080.260.19 | Diffusing screen   |
| 1 1.080.260.16 Transparent label REC 1 1.080.260.15 Transparent label PLAY   |    | 1   | 1.080.260.18 | Transparent label EDIT   |
| 1 1.080.260.15 Transparent label PLAY  |    | 1   | 1.080.260.17 | Transparent label STOP   |
| 3 445 3  |    | 1   | 1.080.260.16 | Transparent label REC  |
| 2 1.080.260.14 Transparent label > <   |    | 1   | 1.080.260.15 | Transparent label PLAY   |
|  |    | 2   | 1.080.260.14 | Transparent label > <  |

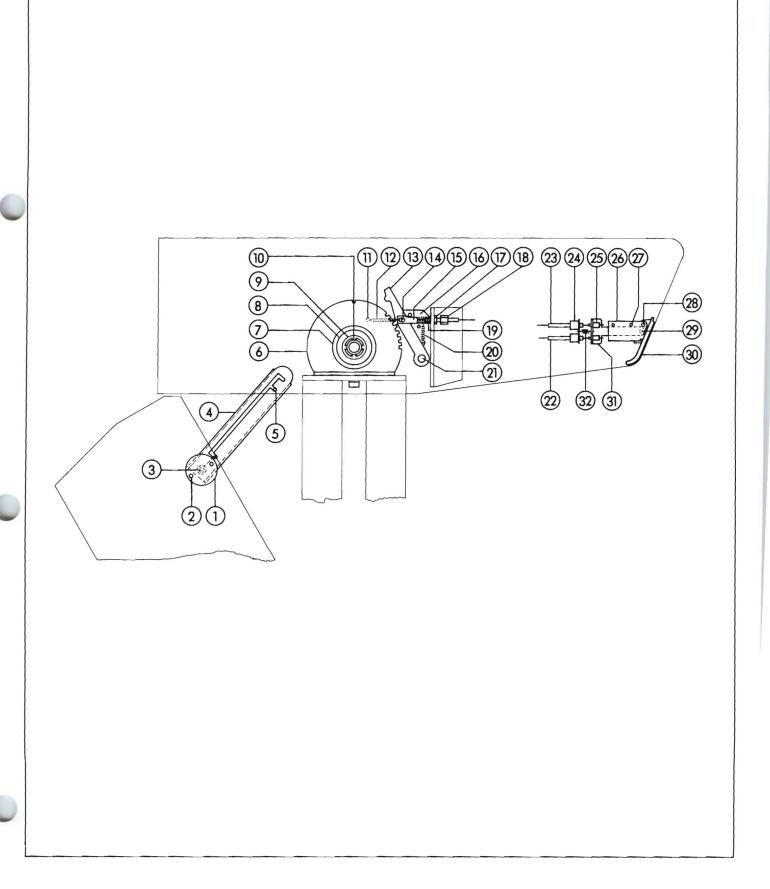
#### 8.4 EDIT ASSEMBLY





|          | QTY | ORDER NUMBER                                 | PART NAME              | SPECIFICATION |
|----------|-----|--|------------------------|---------------|
|          | 1   | 1.820.250.00                                 | Edit assembly          |               |
|          | 3∗  | 21.53.0353                                   | Allen screw            | M3x5          |
|          | 3*  | 23.01.1032                                   | Washer                 |               |
|          | 3∗  | 24.16.1030                                   | Fin washer             |               |
|          | 1*  | 1.010.135.27                                 | Threaded stud          | мз            |
| 01       | 1   | 1.820.253.00                                 | Push button compl.     |               |
| 02       | 1   | 1.820.250.10                                 | Shuttle wheel          |               |
| 03       | 4   | 21.51.8354                                   | Round head allen screw | МЗхб          |
| 04       | 6   | 24.16.1030                                   | Fin washer             |               |
| 05       | 2   | 24.16.3032                                   | Circlip                |               |
| 06       | 4   | 21.53.0354                                   | Allen screw            | M3x6          |
| 07       | 1   | 1.820.250.03                                 | Mounting bracket       | left          |
| 08       | 1   | 1.010.083.23                                 | Washer                 |               |
| or<br>or |     | 1.062.210.08<br>1.062.210.09<br>1.067.180.14 | Spacer shim            |               |
| 10       | 1   | 1.820.250.11                                 | Shaft                  |               |
| 11       | 1   | 24.99.0132                                   | Balance washer         |               |
| 12       | 1   | 36.01.0301                                   | Toothed wheel          |               |
| 13       | 1   | 1.020.256.07                                 | Tension spring         |               |
| 14       | 1   | 58.99.0139                                   | Potentiometer          |               |
| 15       |     | 89.01.0164                                   | Felt strip             |               |
| 16       | 3   | 1.820.250.13                                 | Guide bolt             |               |
| 17       | 1   | 23.01.3043                                   | Washer                 |               |
| 18       | 1   | 1.820.250.08                                 | Bearing bolt           |               |
| 19       | 2   | 1.820.250.07                                 | Reset lever            |               |
| 20       | 1   | 1.080.112.02                                 | Tension spring         |               |
| 21       | 1   | 1.820.250.04                                 | Mounting bracket       | right         |
| 22       | 1   | 1.820.250.01                                 | Support                |               |
| 23       | 1   | 1.820.911.00                                 | Flywheel               |               |
| 24       | 1   | 24.16.5120                                   | Retaining ring for sha | ft            |
| 25       | 1   | 1.820.250.06                                 | Encoding disc          |               |
| 26       | 1   | 1.820.765.00                                 | Cue sensor PCB         |               |
| 27       | 2   | 23.01.2032                                   | Washer                 |               |
| 28       | 1   | 1.820.250.12                                 | PCB mounting bracket   |               |

8.5 CONSOLE TILTING MECHANISM

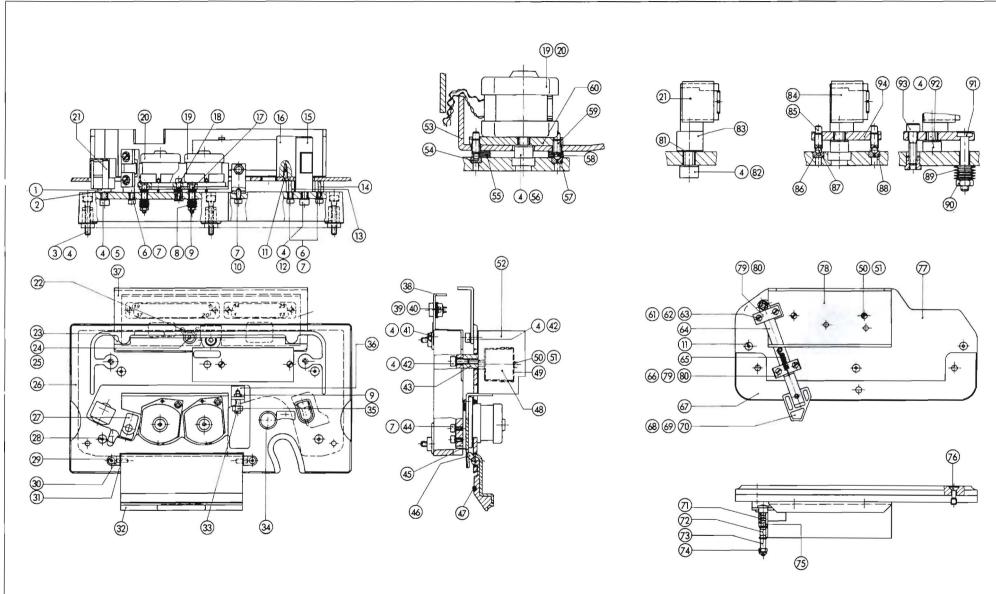


|    | QTY         | ORDER NUMBER                             | PART NAME SPECIFICATION  |
|----|-------------|--|--|
| 01 | 1           | 1.820.500.17                             | Stop bar bearing   |
| 02 | 2           | 1.010.034.21                             | Countersunk allen head screw M4x8  |
| 03 | 1<br>1<br>1 | 1.820.500.25<br>24.16.3060<br>23.01.2084 | Circlip  |
| 04 | 1           | 1.820.500.16                             | Stop bar   |
| 05 | 1 2         | 1.820.090.21<br>24.16.3040               | DANGER CONTRACT CONTRACTOR CONTRA |

|    | Ø.  | ΓΥ  | ORDER NUMBER                               | PART NAME SPECIFICATION   |
|----|-----|-----|--|---|
| 06 | 1   | 1   | 1.820.266.00<br>1.820.267.00               | Toothed disc (with bearing) left<br>Toothed disc (with bearing) right |
| 07 | 1   | 1   | 1.820.090.17                               | Buffer disc   |
| 08 | 1   | 1   | 37.01.0140                                 | Disc spring   |
| 09 | 1   | 1   | 23.99.0119                                 | Washer  |
| 10 | 1   | 1   | 22.99.0133                                 | Self locking nut  |
| 11 | 1   | 1   | 1.820.090.18<br>24.16.3032                 |   |
| 12 | 1   | 1   | 1.010.113.37                               | Tension spring  |
| 13 | 1   | 1   | 1.038.880.61                               | Detent lever  |
| 14 | 1 2 | 1 2 | 1.820.090.15<br>24.16.3032                 | Detent lever shaft<br>Circlip   |
| 15 | 1   | 1   | 1.820.263.10                               | Pull bracket  |
| 16 | 1 2 | 1 2 | 1.820.264.00<br>1.820.265.00<br>24.16.3032 | Detent lever lock compl. right  |
| 17 | 1   | 1   | 22.01.8050                                 | Nut MS  |
| 18 | 1   | 1   | 1.820.263.06                               | Adjusting screw   |
| 19 | 1   | 1   | 1.010.089.37                               | Pressure spring   |
| 20 | 1   | 1   | 1.077.603.01                               | Tension spring  |
| 21 | 1   | 1   | 24.16.3100                                 | Circlip   |

|    | QTY | ORDER NUMBER               | PART NAME                     | SPECIFICATION |
|----|-----|----------------------------|-------------------------------|---------------|
| 22 | 1   | 1.820.263.08               | Bowden wire                   | long          |
| 23 | 1   | 1.820.263.07               | Bowden wire                   | short         |
| 24 | 2   | 1.820.263.12               | Bowden wire bush              |               |
| 25 | 2   | 1.820.263.09               | Clamp                         |               |
| 26 | 1   | 1.820.263.01               | Mounting bracket              |               |
| 27 | 2 2 |                            | Allen screw<br>Fin washer     | M4x6          |
| 28 | 1 2 | 1.820.263.04<br>24.16.3040 | Release lever<br>Circlip      |               |
| 29 | 1   | 1.820.263.05<br>24.16.3040 | Pull bracket shaft<br>Circlip |               |
| 30 | 1   | 1.820.263.02               | Release lever                 |               |
| 31 | 1   | 1.820.263.03               | Pull bracket                  |               |
| 32 | 1   | 1.010.115.37               | Tension spring                |               |

8.6 HEAD BLOCK ASSEMBLY



STUDER A820 8/12

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION           |
|----|-----|--------------|-----------------------------------|
|    | 1   | 1.050.101.00 | Head block Mono 1/4"              |
| 01 | 1   | 1.050.101.04 | Spacer erase head                 |
| 02 |     | 1.020.500.01 | Spacer shim                       |
| 03 | 3   | 21.53.0462   | Allen screw M4x25                 |
| 04 | 16  | 24.16.1040   | Fin washer                        |
| 05 | 1   | 21.53.0471   | Allen screw M4x14                 |
| 06 | 7   | 21.53.0356   | Allen screw M3x10                 |
| 07 | 10  | 24.16.1030   | Fin washer                        |
| 08 | 20  | 37.01.0101   | Disc spring                       |
| 09 | 3   | 22.01.8030   | Hexagonal nut M3                  |
| 10 | 1   | 21.53.0355   | Allen screw M3x8                  |
| 11 | 4   | 21.51.2355   | Countersunk allen head screw M3x8 |
| 12 | 1   | 21.53.0456   | Allen screw M4x10                 |
| 13 | 2   | 1.010.112.27 | Hex stud bolt                     |
| 14 | 4   | 1.010.216.27 | Hex stud bolt                     |
| 15 | 1   | 1.050.190.00 | Head dummy                        |
| 16 | 1   | 1.050.101.22 | Tape guide profile                |
| 17 | 2   | 1.020.740.03 | Bolt                              |
| 18 | 2   | 1.020.710.05 | Spec. screw                       |
| 19 | 1   | 1.317.716.00 | Reproduce head                    |
| 20 | 1   | 1.317.710.00 | Record head                       |
| 21 | 1   | 1.116.097.81 | Erase head                        |
| 22 | 2   | 29.26.1024   | Soldering lug                     |
| 23 | 1   | 1.050.101.21 | Head block cover rear             |
| 24 | 1   | 21.53.0454   | Allen screw M4x6                  |
| 25 | 1   | 24.16.2040   | Serrated lock washer              |
| 26 | 1   | 1.050.101.09 | Head block cover 1/4"             |
| 27 | 1   | 1.050.197.00 | Scrape flutter roller 1/4" compl. |
| 28 | 4   | 21.51.2354   | Countersunk allen head screw M3x6 |
| 29 | 2   | 21.51.8354   | Round head allen screw M3x6       |
| 30 | 2   | 1.050.101.13 | Bearing cover                     |
| 31 | 2   | 1.010.105.23 | Plastic washer (PTFE)             |
| 32 | 1   | 1.820.912.00 | Head screening flap 1/4" compl.   |
| 33 | 1   | 1.050.101.19 | Rubber stop                       |

| 34 | 1 | 1.050.101.28 | Protective sleeve (plastic)       |
|----|---|--------------|-----------------------------------|
| 35 | 1 | 1.050.101.24 | Stop bolt                         |
| 36 | 1 | 1.050.101.18 | Stop bolt mounting bracket        |
| 37 | 1 | 1.050.101.20 | Cover sheet                       |
| 38 | 1 | 1.050.101.01 | Connector mounting bracket        |
| 39 | 4 | 21.01.0204   | Slotted cheese head screw M2x6    |
| 40 | 4 | 24.16.1020   | Fin washer                        |
| 41 | 4 | 21.51.8455   | Round head allen screw M4x8       |
| 42 | 4 | 21.53.0456   | Allen screw M4x10                 |
| 43 | 2 | 1.010.132.27 | Hex stud bolt                     |
| 44 | 2 | 21.53.0353   | Allen screw M3x5                  |
| 45 | 1 | 1.050.101.27 | Flat spring                       |
| 46 | 1 | 1.050.101.25 | Engaging pin                      |
| 47 | 2 | 1.337.954.04 | Damping rubber                    |
| 48 | 1 | 1.810.710.81 | Reproduce preamplifier 1CH, 1/4"  |
| 49 | 1 | 1.050.101.02 | Preamplifier screening            |
| 50 | 2 | 21.01.0278   | Slotted cheese head screw M2.5x5  |
| 51 | 4 | 24.16.1025   | Fin washer                        |
| 52 | 1 | 1.050.101.10 | Cover profile rear                |
| 53 | 1 | 1.050.101.05 | Head screening bottom             |
| 54 | 2 | 1.020.840.10 | Prism bearing                     |
| 55 | 3 | 1.010.099.37 | Pressure spring                   |
| 56 | 2 | 21.53.0455   | Allen screw M4x8                  |
| 57 | 2 | 1.020.840.09 | Cone bearing                      |
| 58 | 4 | 41.01.0120   | Bearing ball                      |
| 59 | 4 | 1.050.101.03 | Allen set screw                   |
| 60 | 2 | 1.020.850.06 | Swivel plate                      |
| 61 | 4 | 21.01.0281   | Slotted cheese head screw M2.5x10 |
| 62 | 2 | 23.01.1027   | Washer                            |
| 63 | 4 | 24 16.1025   | Fin washer                        |
| 64 | 1 | 1.050.193.00 | Tape lifting slider               |
| 65 | 1 | 1.010.025.37 | Tension spring                    |
| 66 | 1 | 1.020.250.20 | Bracket                           |
| 67 | 1 | 1.050.101.12 | Head cover rear section           |
| 68 | 1 | 1.050.101.14 | Stider knob                       |
| 69 | 1 | 21.01.0352   | Slotted cheese head screw M3x4    |
|    |   |              |                                   |

|    |   | 23.01.1032   | Washer                               |
|----|---|--------------|--------------------------------------|
| 71 | 1 | 1.020.250.23 | Pressure spring                      |
| 72 | 1 | 1.020.250.29 | Guide                                |
| 73 | 1 | 1.010.081.27 | Spacer                               |
| 74 | 1 | 22.99.0112   | Self locking nut M3                  |
| 75 | 1 | 1.050.101.17 | Tape Lifter bush                     |
| 76 | 2 | 1.010.036.21 | Countersunk allen screw, spec. M4x14 |
| 77 | 1 | 1.050.101.11 | Head cover front section             |
| 78 | 1 | 1.050.101.06 | Head screening upper                 |
| 79 | 2 | 1.020.250.15 | Slider guide                         |
| 80 | 2 | 1.020.250.14 | Stider guide cover                   |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION  |
|----|-----|--------------|--|
|    | 1   | 1.050.102.00 | Head block Stereo, full track erase<br>head, 1/4"<br>like 1.050.101.00 except: |
| 19 | 1   | 1.317.736.00 | Reproduce head   |
| 20 | 1   | 1.317.730.00 | Record head  |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"   |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION  |
|----|-----|--------------|--|
|    | 1   | 1.050.103.00 | Head block Stereo, overlapping<br>erasure, 1/4"<br>like 1.050.101.00 except: |
| 19 | 1   | 1.317.736.00 | Reproduce head   |
| 20 | 1   | 1.317.730.00 | Record head  |
| 21 | 1   | 1.116.092.81 | Erase head   |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"   |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION                          |
|----|-----|--------------|--|
|    | 1   | 1.050.104.00 | Head block 2CH 1/4"<br>Like 1.050.101.00 except: |
| 19 | 1   | 1.317.726.00 | Reproduce head                                   |
| 20 | 1   | 1.317.720.00 | Record head                                      |
| 21 | 1   | 1.116.092.81 | Erase head                                       |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"                 |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION                             |
|----|-----|--------------|---|
|    | 1   | 1.050.105.00 | Head block 2CH/TC 1/4"<br>like 1.050.101.00 except: |
| 01 |     |              | Not used  |
| 02 |     |              | Not used  |
| 05 |     |              | Not used  |
| 12 |     |              | Not used  |
| 15 |     |              | Not used  |
| 19 | 1   | 1.317.726.00 | Reproduce head                                      |
| 20 | 1   | 1.317.720.00 | Record head   |
| 21 | 1   | 1.116.810.01 | TC read/Audio erase head                            |
| 26 | 1   | 1.050.105.09 | Head block cover TC                                 |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"                    |
| 81 |     | 1.062.210.08 | Spacer shim   |
| 82 | 1   | 21.53.0459   | Allen screw M4x18                                   |
| 83 | 1   | 1.050.105.04 | Spacer  |
| 84 | 1   | 1.116.810.02 | TC read/write/erase head                            |
| 85 | 2   | 1.050.101.03 | Allen set screw                                     |
| 86 | 1   | 1.020.840.10 | Prism bearing                                       |
| 87 | 2   | 41.01.0120   | Bearing ball  |
| 88 | 1   | 1.020.840.09 | Cone bearing  |
| 89 | 10  | 37.01.0101   | Disc spring   |
| 90 | 1   | 22.01.8030   | Hexagonal nut M3                                    |
| 91 | 1   | 1.020.740.03 | Bolt  |
| 92 | 1   | 21.53.0455   | Allen screw M4x8                                    |
| 93 | 1   | 1.020.710.05 | Spec. screw   |
| 94 | 1   | 1.020.883.01 | Swivel plate TC                                     |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION   |
|----|-----|--------------|---|
|    | 1   | 1.050.106.00 | Head block 2CH, 2CH erase head, 1/4"<br>like 1.050.101.00 except: |
| 19 | 1   | 1.317.726.00 | Reproduce head  |
| 20 | 1   | 1.317.720.00 | Record head   |
| 21 | 1   | 1.116.814.00 | Erase head  |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"                                  |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION   |
|----|-----|--------------|---|
|    | 1   | 1.050.107.00 | Head block 2CH,<br>full track erase head, 1/4"<br>like 1.050.101.00 except: |
| 19 | 1   | 1.317.726.00 | Reproduce head  |
| 20 | 1   | 1.317.720.00 | Record head   |
| 48 | 1   | 1.810.711.81 | Reproduce preamplifier 2CH, 1/4"  |

|            | OTV | ORDER NUMBER | PART NAME SPECIFICATION                          |
|------------|-----|--------------|--|
| _          |     |              |  |
|            | 1   | 1.050.121.00 | Head block 2CH 1/2"<br>like 1.050.101.00 except: |
| 01         |     |              | Not used   |
| 19         | 1   | 1.317.705.00 | Reproduce head                                   |
| 20         | 1   | 1.317.701.00 | Record head                                      |
| 21         | 1   | 1.216.042.04 | Erase head                                       |
| 26         | 1   | 1.050.121.04 | Head block cover 1/2"                            |
| 27         | 1   | 1.050.191.00 | Scrape flutter roller compl. 1/2"                |
| <b>3</b> 2 | 1   | 1.820.913.00 | Head Screening flap 172" compl.                  |
| 48         | 1   | 1.810.712.00 | Reproduce preamplifier 2CH, 1/2"                 |
| 52         | 1   | 1.050.121.05 | Cover profile rear                               |
| 61         |     |              | Not used   |
| 62         |     |              | Not used   |
| 63         |     |              | Not used   |
| 64         |     |              | Not used   |
| 65         |     |              | Not used   |
| 66         |     |              | Not used   |
| 67         | 1   | 1.050.121.07 | Head cover rear section                          |
| 68         |     |              | Not used   |
| 69         |     |              | Not used   |
| 70         |     |              | Not used   |
| 71         |     |              | Not used   |
| 72         |     |              | Not used   |
| 73         |     |              | Not used   |
| 74         |     |              | Not used   |
| 75         |     |              | Not used   |
| 77         | 1   | 1.050.121.06 | Head cover front section                         |

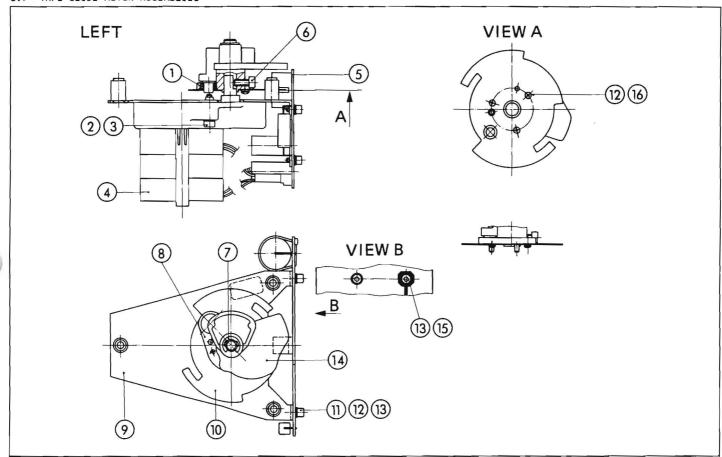
| 78 | 1 | 1.050.121.01 | Head screening | top |
|----|---|--------------|----------------|-----|
| 79 |   |              | Not used       |     |
| 80 |   |              | Not used       |     |

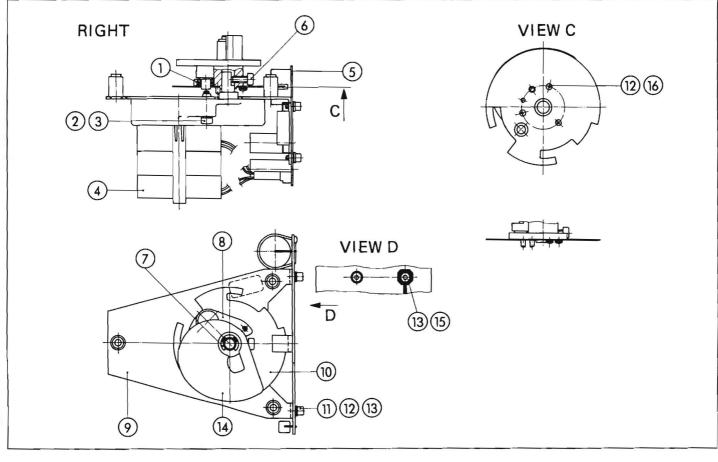
|    | QTY | ORDER NUMBER | PART NAME                                  | SPECIFICATION |
|----|-----|--------------|--|---------------|
|    | 1   | 1.050.121.81 | Head block 2CH 1/2"<br>like 1.050.121.00 e |               |
| 19 | 1   | 1.318.705.00 | Reproduce head                             |               |
| 20 | 1   | 1.318.701.00 | Record head                                |               |
| 48 | 1   | 1.810.713.00 | Reproduce preamplif                        | ier 2CH, 1/2" |

|            | QTY | ORDER NUMBER | PART NAME SPECIFICATION                             |
|------------|-----|--------------|---|
|            | 1   | 1.050.122.00 | Head block 2CH/TC 1/2"<br>like 1.050.101.00 except: |
| 01         |     |              | Not used  |
| 15         |     |              | Not used  |
| 19         | 1   | 1.318.705.00 | Reproduce head                                      |
| 20         | 1   | 1.318.700.00 | Record head   |
| 21         | 1   | 1.116.815.00 | Erase head  |
| 26         | 1   | 1.050.122.01 | Head block cover 1/2"                               |
| 27         | 1   | 1.050.191.00 | Scrape flutter roller compl. 1/2"                   |
| <b>3</b> 2 | 1   | 1.820.913.00 | Head Screening flap 1/2" compl.                     |
| 48         | 1   | 1.810.713.00 | Reproduce preamplifier 20H, 1/2"                    |
| 52         | 1   | 1.050.121.05 | Cover profile rear                                  |
| 61         |     |              | Not used  |
| 62         |     |              | Not used  |
| 63         |     |              | Not used  |
| 64         |     |              | Not used  |
| 65         |     |              | Not used  |
| 66         |     |              | Not used  |
| 67         | 1   | 1.050.121.07 | Head cover rear section                             |
| 68         |     |              | Not used  |
| 69         |     |              | Not used  |
| 70         |     |              | Not used  |
| 71         |     |              | Not used  |
| 72         |     |              | Not used  |

| 73 |    |              | Not used            |       |         |
|----|----|--------------|---------------------|-------|---------|
| 74 |    |              | Not used            |       |         |
| 75 |    |              | Not used            |       |         |
| 77 | 1  | 1.050.121.06 | Head cover          | front | section |
| 78 | 1  | 1.050.121.01 | Head screening      |       | top     |
| 79 |    |              | Not used            |       |         |
| 80 |    |              | Not used            |       |         |
| 84 | 1  | 1.116.816.00 | TC read/write/erase | head  |         |
| 85 | 2  | 1.050.101.03 | Allen set screw     |       |         |
| 86 | 1  | 1.020.840.10 | Prism bearing       | -     | *       |
| 87 | 2  | 41.01.0120   | Bearing ball        |       |         |
| 88 | 1  | 1.020.840.09 | Cone bearing        |       |         |
| 89 | 10 | 37.01.0101   | Disc spring         |       |         |
| 90 | 1  | 22.01.8030   | Hexagonal nut       |       | м3      |
| 91 | 1  | 1.020.740.03 | Bolt                |       |         |
| 92 | 1  | 21.53.0455   | Allen screw         |       | M4x8    |
| 93 | 1  | 1.020.710.05 | Spec. screw         |       |         |
| 94 | 1  | 1.020.883.01 | Swivel plate TC     |       |         |

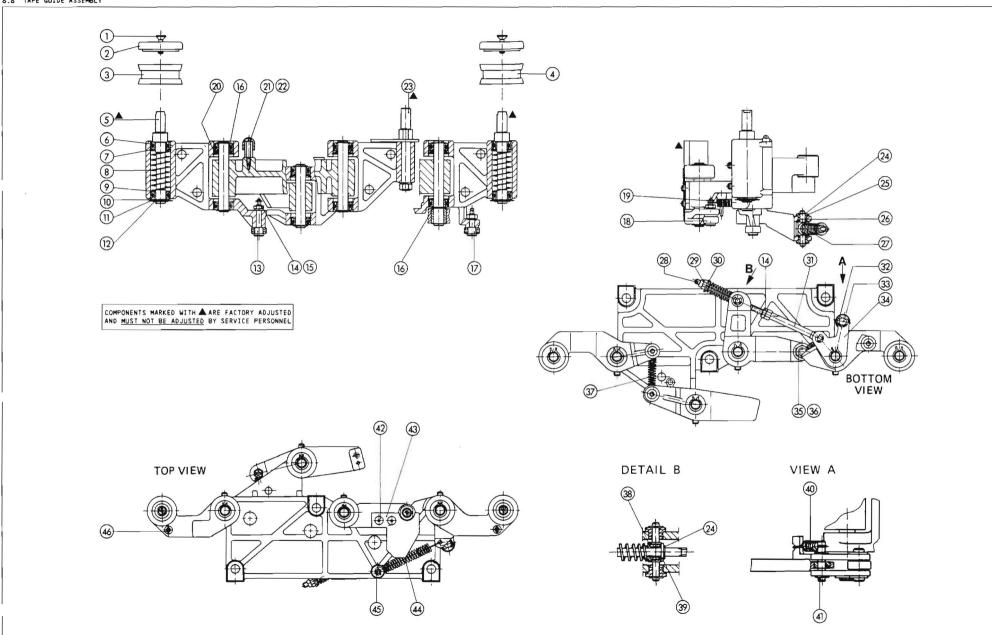
## 8.7 TAPE GUIDE MOTOR ASSEMBLIES





|    | Q. | TY | ORDER NUMBER                 | PART NAME SP                                 | ECIFICATION   |
|----|----|----|------------------------------|--|---------------|
|    | 1  |    | 1.820.140.00                 | Tape guide motor assembly (* = not included) | left          |
|    |    | 1  | 1.820.141.00                 | Tape guide motor assembly (* = not included) | right         |
|    | 3, | ٠3 | 21.53.0461                   | Allen screw                                  | M4x22         |
|    | 3, | ٠3 | 24.16.1040                   | Fin washer                                   |               |
| 01 | 2  | 2  | 1.710.165.07                 | O-ring spec.                                 |               |
| 02 | 2  | 2  | 21.53.0472                   | Allen screw                                  | M4x16         |
| 03 | 2  | 2  | 24.16.1040                   | Fin washer                                   |               |
| 04 | 1  | 1  | 1.820.142.00                 | Motor compl.                                 |               |
| 05 | 1  | 1  | 1.820.773.82                 | Tape lifter control PCB                      |               |
| 06 | 1  | 1  | 21.53 0456                   | Allen screw                                  | M4x10         |
| 07 | 1  | 1  | 24.16.3060                   | Circlip                                      |               |
| 80 | 1  | 1  | 1.820.914.00<br>1.820.915.00 | Driver compl.<br>Driver compl.               | left<br>right |
| 09 | 1  | 1  | 1.820.916.00                 | Motor support compl.                         |               |
| 10 | 1  | 1  | 1.820.140.06<br>1.820.141.06 |  | left<br>right |
| 11 | 3  | 3  | 23.01.1032                   | Washer                                       |               |
| 12 | 6  | 6  | 24.16.1030                   | Fin washer                                   |               |
| 13 | 4  | 4  | 21.53.0354                   | Allen screw                                  | M3x6          |
| 14 | 1  | 1  | 1.820.140.05<br>1.820.141.05 |  | left<br>right |
| 15 | 1  | 1  | 24.16.2030                   | Serrated lock washer                         |               |
| 16 | 3  | 3  | 21.51.8354                   | Round head allen screw                       | мЗхб          |

8.8 TAPE GUIDE ASSEMBLY

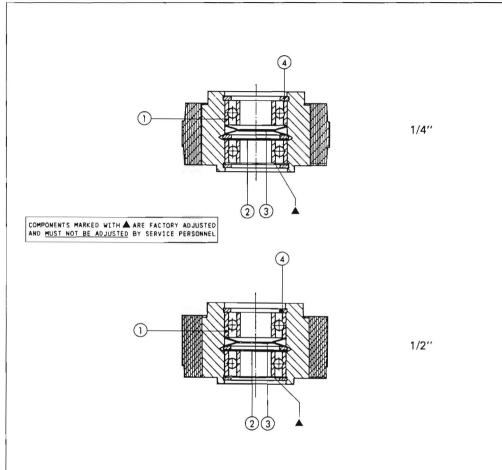


STUDER A820 8/18

|          | QTY      | ORDER NUMBER                 | PART NAME SPECIFICATION   |
|----------|----------|------------------------------|---|
|          | 1        | 1.820.120.00                 | Tape guide assembly<br>(* ≈ not included)                                   |
|          | 3*       | 21.53.0464                   | Allen screw M4x30   |
|          | 3*       | 24.16.1040                   | Fin washer  |
|          | 3×       | 1.820.090.08                 | Centring bush   |
| 01<br>or | 2*<br>2* | 1.010.036.21<br>1.010.040.21 | Spec. screw (1/4")         M4x14           Spec. screw (1/2")         M4x20 |
| 02<br>or | 2*       | 1.820.400.05<br>1.820.410.05 | Roller cap 1/4"<br>Roller cap 1/2"  |
| 03<br>or | 1*       | 1.820.400.01<br>1.820.410.01 | Guide roller left 1/4"<br>Guide roller left 1/2"                            |
| 04<br>or | 1*<br>1* | 1.820.400.02<br>1.820.410.02 | Guide roller right 1/4"<br>Guide roller right 1/2"                          |
| 05       | 2        | 1.820.120.28                 | Roller shaft 1/4", 1/2"   |
| 06       | 12       | 41.04.0110                   | Ball bearing  |
| 07       | 10       | 24.16.4160                   | Retaining ring for bore   |
| 08       | 2        | 1.010.097.37                 | Pressure spring   |
| 09       | 2        | 1.010.066.23                 | Spacer shim   |
| 10       | 2        | 1.062.210.11                 | Spacer shim   |
| 11       | 2        | 1.010.085.23                 | Washer  |
| 12       | 2        | 24.16.3060                   | Circlip   |
| 13       | 1        | 1.820.120.17                 | Bearing bolt left   |
| 14       | 4        | 22.01.8040                   | Hexagonal nut M4  |
| 15       | 3        | 24.16.1040                   | Fin washer  |
| 16       | 9        | 24.16.5080                   | Retaining ring for shaft  |
| 17       | 2        | 1.820.120.18                 | Bearing bolt right  |
| 18       | 4        | 1.820.120.19                 | Roller  |
| 19       | 2        | 24.16.3023                   | Circlip   |
| 20       | 8        | 37.02.0203                   | Disc spring   |
| 21       | 3        | 1.010.133.27                 | Hex stud bolt   |
| 22       | 3        | 1.077.100.20                 | Rubber cap  |
| 23       | 1        | 1.820.120.27                 | Pinch roller shaft  |
| 24       | 5        | 24.16.3032                   | Circlip   |
| 25       | 2        | 1.820.120.23                 | Bearing bush  |
| 26       | 1        | 1.820.120.24                 | Bearing bolt  |
| 27       | 1        | 1.010.046.37                 | Pressure spring   |
| 28       | 1        | 1.820.120.26                 | Stud  |
| 29       | 1        | 22.99.0116                   | Self locking nut M4   |

| 30 | 1 | 1.820.120.25 | Washer                            |
|----|---|--------------|-----------------------------------|
| 31 | 1 | 1.820.120.20 | Joint                             |
| 32 | 2 | 24.16.3050   | Circlip                           |
| 33 | 1 | 1.820.120.21 | Bolt                              |
| 34 | 1 | 1.820.917.00 | Pinch force Lever compl.          |
| 35 | 1 | 22.01.8060   | Hexagonal nut Mó                  |
| 36 | 1 | 24.16.1060   | Fin washer                        |
| 37 | 1 | 1.010.116.37 | Tenson spring                     |
| 38 | 1 | 1.820.120.33 | Bearing bush                      |
| 39 | 1 | 23.01.2043   | Washer                            |
| 40 | 1 | 1.010.115.37 | Tension spring                    |
| 41 | 1 | 1.820.120.22 | Knuckle pin                       |
| 42 | 2 | 21.53.2354   | Countersunk allen head screw M3x6 |
| 43 | 1 | 1.820.120.31 | Slot cover                        |
| 44 | 1 | 1.010.117.37 | Tension spring                    |
| 45 | 1 | 1.830.125.07 | Bolt                              |
| 46 | 2 | 1.820.120.32 | Driver bolt                       |

#### 8.9 PINCH ROLLER

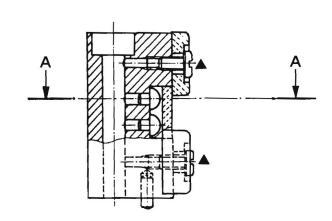


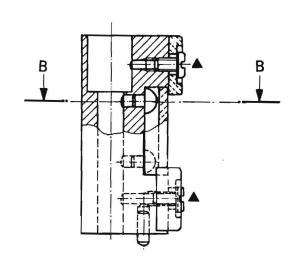
|    | Q.    | ſΥ | ORDER NUMBER   | PART NAME SPECIFICATION              |
|----|-------|----|--|--------------------------------------|
|    | 1     |    | 1.820.420.00   | Pinch rotler compl. 1/4"             |
|    | 10000 | 1  | 1.820.430.00   | Pinch roller compl. 1/2"             |
| 01 | 2     | 2  | 41.04.0110   | Ball bearing                         |
| 02 |       |    | 1.010.062.23<br>1.010.063.23<br>1.010.064.23<br>1.010.065.23 | Spacer shim 0.12<br>Spacer shim 0.15 |
| 03 | 2     | 2  | 37.02.0203   | Disc spring                          |
| 04 | 3     | 3  | 24.99.0131   | Retaining ring for bore              |

8.10 TAPE LIFTER BOLT

1/4"

1/2"





SECTION A-A



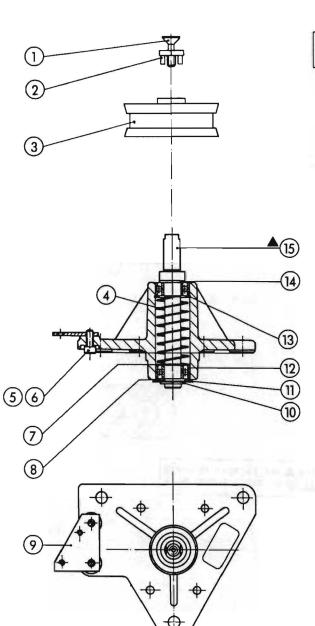
SECTION B-B



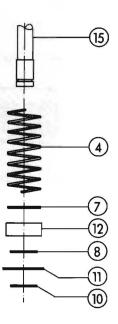
COMPONENTS MARKED WITH A ARE FACTORY ADJUSTED AND MUST NOT BE ADJUSTED BY SERVICE PERSONNEL

|   | ď. | ГΥ | ORDER NUMBER | PART NAME                                | SPECIFICATION |
|---|----|----|--------------|--|---------------|
|   | 1  |    | 1.820.121.00 | Tape lift bolt compl. (* = not included) | 1/4"          |
|   |    | 1  | 1.820.122.00 | Tape lift bolt compl. (* = not included) | 1/2"          |
| Γ | 1  | *1 | 21.53.0464   | Allen screw                              | M4×30         |
|   | 1  | *1 | 24.16.1040   | Fin washer                               |               |

## 8.11 PRESTABILIZER ROLLER

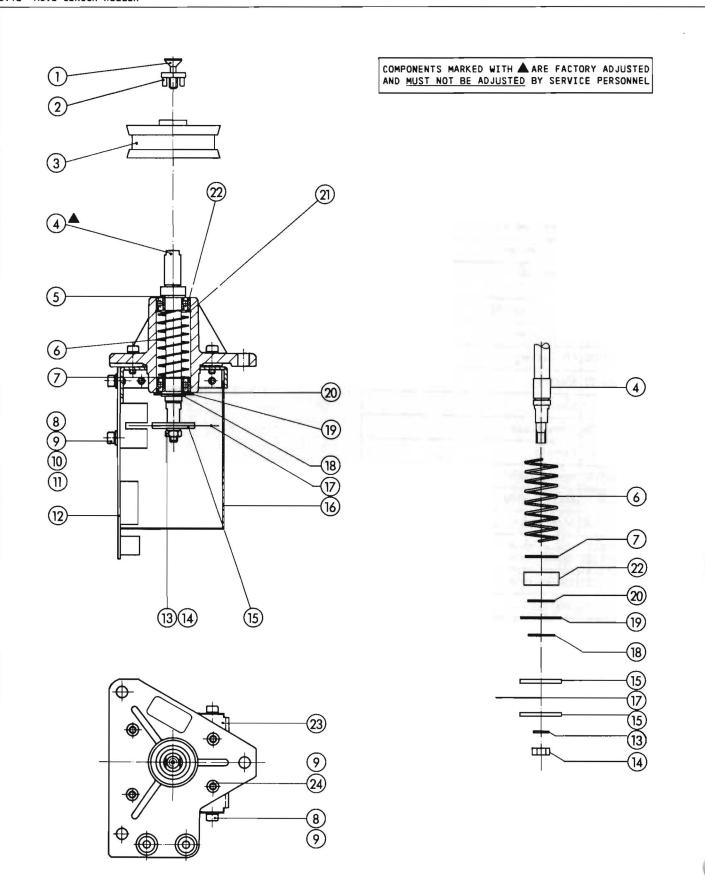


COMPONENTS MARKED WITH A ARE FACTORY ADJUSTED AND MUST NOT BE ADJUSTED BY SERVICE PERSONNEL



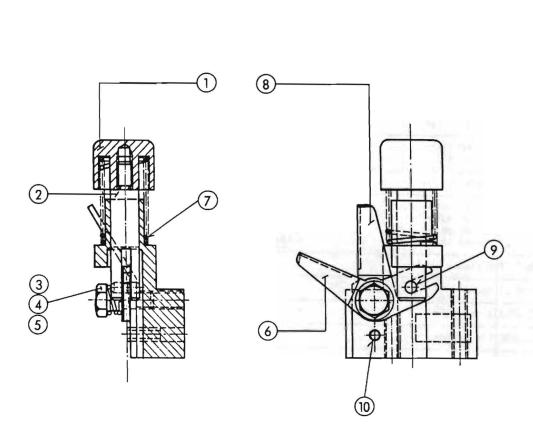
|          | QTY                        | ORDER NUMBER   | PART NAME SPECIFICATION   |
|----------|----------------------------|--|---|
|          | 1                          | 1.820.170.00   | Prestabilizer roller<br>(* = not included)                              |
|          | 3*                         | 1.010.035.21   | Spec. screw M4  |
|          | 3*                         | 24.16.1050   | Fin washer  |
|          | 1*<br>1*<br>1*<br>1*<br>2* | 1.820.793.01<br>1.820.793.02<br>1.820.793.03<br>21.53.0354   | Opto sensor cover<br>LED insert<br>Mounting bracket for OPTO SENSOR PCB |
|          | 1*                         | 23.01.1032   |   |
| 01       | 1*                         | 1.010.036.21   | Countersunk allen screw, spec. M4x14                                    |
| 02       | 1*                         | 1.820.400.06   | Roller driver   |
| 03<br>or | 1*<br>1*                   | 1.820.400.03<br>1.820.410.03                                 |   |
| 04       | 1                          | 1.010.097.37   | Pressure spring   |
| 05       | 1                          | 21.53.0335   | Allen screw   |
| 06       | 2                          | 24.16.1030   | Fin washer  |
| 07       | 1                          | 1.010.066.23   | Spacer  |
| 80       | 1                          | 1.062.210.11   | Spacer  |
| 09       | 1                          | 1.820.170.04   | Screw plate   |
| 10       | 1                          | 24.16.3060   | Circlip   |
| 11       | 1                          | 1.010.085.23   | Spec. washer  |
| 12       | 2                          | 41.04.0110   | Ball bearing  |
| 13       | 1                          | 24.16.4160   | Retaining ring for bore   |
| 14       |                            | 1.010.058.23<br>1.010.059.23<br>1.010.060.23<br>1.010.061.23 | Spacer shim 0.12<br>Spacer shim 0.15                                    |
| 15       | 1                          | 1.820.150.11   | Shaft   |

8.12 MOVE SENSOR ROLLER



|          | 1        |  |  |
|----------|----------|--|--|
|          | QTY      | ORDER NUMBER   | PART NAME SPECIFICATION                          |
|          | 1        | 1.820.180.00   | Move sensor roller 1/4", 1/2" (* = not included) |
|          | 3*       | 1.010.035.21   | Spec. screw M4                                   |
|          | 3*       | 24.16.1050   | Fin washer                                       |
| 01       | 1*       | 1.010.036.21   | Countersunk allen screw, spec. M4x14             |
| 02       | 1*       | 1.820.400.06   | Roller driver                                    |
| 03<br>or | 1*<br>1* | 1.820.400.04<br>1.820.410.04                                 |  |
| 04       | 1        | 1.820.180.02   | Shaft  |
| 05       |          | 1.010.058.23<br>1.010.059.23<br>1.010.060.23<br>1.010.061.23 | Spacer shim 0.12<br>Spacer shim 0.15             |
| 06       | 1        | 1.010.097.37   | Pressure spring                                  |
| 07       | 1        | 1.010.066.23   | Spacer   |
| 08       | 8        | 21.53.0353   | Allen screw M3x5                                 |
| 09       | 11       | 24.16.1030   | Fin washer                                       |
| 10       | 3        | 23.01.1032   | Washer   |
| 11       | 1        | 24.16.2030   | Serrated lock washer                             |
| 12       | 1        | 1.820.770.00   | MOVE SENSOR PCB                                  |
| 13       | 1        | 24.16.1040   | Fin washer                                       |
| 14       | 1        | 22.01.8040   | Hexagonal nut                                    |
| 15       | 2        | 1.010.084.23   | Washer   |
| 16       | 1        | 1.820.180.05   | Cover  |
| 17       | 1        | 1.820.180.04   | Encoding disc                                    |
| 18       | 1        | 24.16.3060   | Circlip  |
| 19       | 1        | 1.010.085.23   | Flat washer                                      |
| 20       | 1        | 1.062.210.11   | Spacer   |
| 21       | 1        | 24.16.4160   | Retaining ring for bore                          |
| 22       | 2        | 41.04.0110   | Ball bearing                                     |
| 23       | 1        | 1.820.180.03   | Mounting bracket                                 |
| 24       | 4        | 21.53.0356   | Allen screw M3x10                                |

# 8.13 TAPE SCISSORS



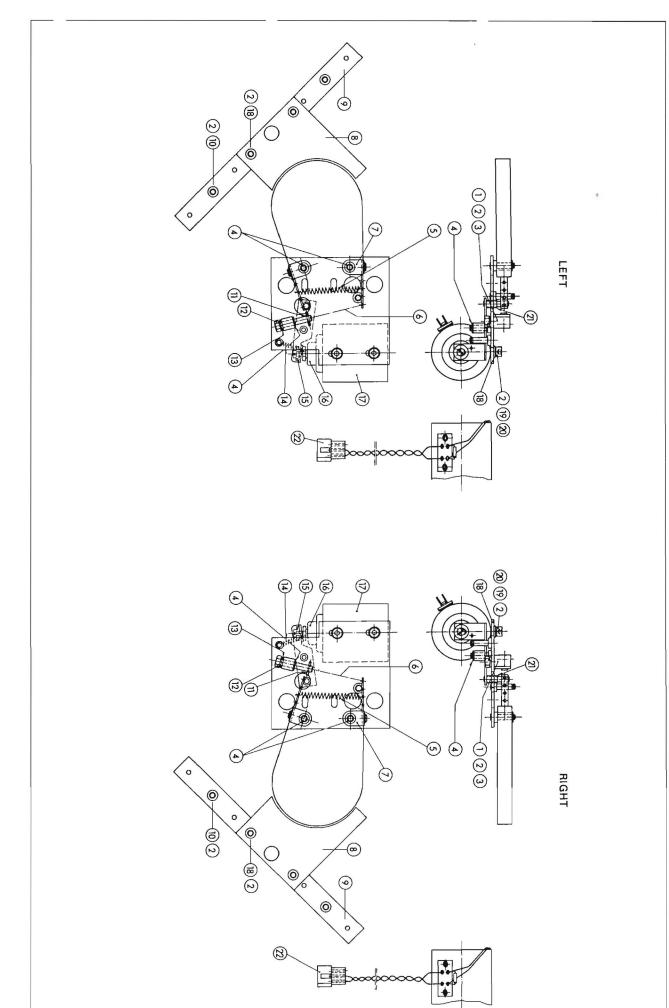
|    | QTY | ORDER NUMBER | PART NAME                             | SPECIFICATION |
|----|-----|--------------|---------------------------------------|---------------|
|    | 1   | 1.820.215.00 | Tape scissors 1/4" (* = not included) |               |
|    | 2*  | 21.53.0361   | Allen screw                           | M3x22         |
|    | 2*  | 24.16.1030   | Fin washer                            |               |
| 01 | 1   | 1.820.215.03 | Push button                           |               |
| 02 | 1   | 1.820.215.02 | Shaft                                 |               |
| 03 | 1   | 1.020.715.05 | Spec. screw                           |               |
| 04 | 1   | 1.020.715.08 | Pressure spring                       |               |
| 05 | 1   | 1.020.715.10 | Spacer                                |               |
| 06 | 1   | 1.020.715.02 | Moving blade                          |               |
| 07 | 1   | 1.020.715.09 | Pressure spring                       |               |
| 80 | 1   | 1.020.715.01 | Fixed blade                           |               |
| 09 | 1   | 25.06.8154   | Straight pin                          |               |
| 10 | 1   | 25.16.1206   | Spiral pin                            |               |

|          | Q   | ΤY       | ORDER NUMBER   | PART NAME SPECIFICATION  |  |  |
|----------|-----|----------|--|--|--|--|
|          | 1   |          | 1.820.150.00   | Tape tension sensor Left (* = not included)  |  |  |
|          |     | 1        | 1.820.151.00   | Tape tension sensor right (* = not included)   |  |  |
| 01       | 100 | *1       | 1.010.036.21<br>1.010.040.21                                 | Spec. screw (1/4")       M4x14         Spec. screw (1/2")       M4x20  |  |  |
| 02<br>or |     | *1       | 1.820.400.05<br>1.820.410.05                                 | Roller cap 1/4"<br>Roller cap 1/2"   |  |  |
| 03<br>or | 1,  | ×1<br>×1 | 1.820.400.02<br>1.820.410.02                                 |  |  |  |
| 04       | 2   | 2        | 21.51.8354   | Round head allen screw M3x6  |  |  |
| 05       | 9   | 9        | 24.16.1030   | Fin washer   |  |  |
| 06       | 1   | 1        | 1.820.150.12   | Collar   |  |  |
| 07       | 1   | 1        | 1.820.150.11   | Shaft  |  |  |
| 80       |     |          | 1.010.058.23<br>1.010.059.23<br>1.010.060.23<br>1.010.061.23 | Spacer shim         0.1           Spacer shim         0.12           Spacer shim         0.15           Spacer shim         0.16 |  |  |
| 09       | 2   | 2        | 41.04.0110   | Ball bearing   |  |  |
| 10       | 1   | 1        | 24.16.4160   | Retaining ring for bore  |  |  |
| 11       | 1   | 1        | 1.010.097.37   | Pressure spring  |  |  |
| 12       | 2   | 2        | 24.99.0129   | Retaining ring for shaft   |  |  |
| 13       | 1   | 1        | 1.820.150.06   | Joint  |  |  |
| 14       | 1   | 1        | 22.01.8030   | Hexagonal nut M3   |  |  |
| 15       | 1   | 1        | 1.820.154.00   | Adjusting joint  |  |  |
| 16       | 1   | 1        | 25.06.6054   | Center grooved pin   |  |  |
| 17       | 1   | 1        | 1.010.114.37   | Tension spring   |  |  |
| 18       | 2   | 2        | 24.16.5040   | Retaining ring for shaft   |  |  |
| 19       | 2   | 2        | 41.99.0104   | Ball bearing   |  |  |
| 20       | 2   | 2        | 37.02.0201   | Disc spring  |  |  |
| 21       | 2   | 2        | 24.16.4100   | Retaining ring for bore  |  |  |
| 22       | 1,  |          | 21.53.0355   | Allen screw M3x8   |  |  |
| 23       | 1,  |          | 24.16.1030   | Fin washer   |  |  |
| 24       | 1,  | - 1      | 1.820.160.00   | Tape tension feeling element compl.  |  |  |
| 25       | 1   | 1        | 1.820.918.00   | Eye compl.   |  |  |
| 26       | 1   | 1        | 1.820.150.16   | Driver   |  |  |
| 27       | 1   | 1        | 1.820.151.17<br>1.820.150.17                                 | Driver spring right<br>Driver spring left  |  |  |
| 28       | 1   | 1        | 24.99.0122   | Retaining ring for shaft   |  |  |
| 29       | 1   | 1        | 1.062.210.09   | Spacer shim  |  |  |

| 30 | 3  | 3  | 21.53.0355   | Allen screw M3x8                 |
|----|----|----|--------------|----------------------------------|
| 31 | 2  | 2  | 21.53.0356   | Allen screw M3x10                |
| 32 | 1  | 1  | 1.820.772.00 | TAPE TENSION SENSOR PCB          |
| 33 | 2  | 2  | 23.01.1032   | Washer                           |
| 34 | 2  | 2  | 21.53.0355   | Allen screw M3x5                 |
| 35 | 2  | 2  | 1.010.127.27 | Hex stud bold                    |
| 36 | 1  | 1  | 1.820.153.00 | Hall effect potentiometer (7 kQ) |
| 37 | 1  | 1  | 1.820.150.10 | Stop sheet                       |
| 38 | 2  | 2  | 1.010.068.27 | Hex stud bolt                    |
| 39 | 1  | 1  | 24.16.3060   | Circlip                          |
| 40 | 1  | 1  | 1.010.085.23 | Washer                           |
| 41 | 1  | 1  | 1.062.210.11 | Spacer shim                      |
| 42 | 1  | 1  | 1.010.066.23 | Spacer shim                      |
| 43 | 3, | ٠3 | 24.16.1050   | Fin washer                       |
| 44 | 3, | ٠3 | 1.010.035.21 | Spec. Screw M4                   |

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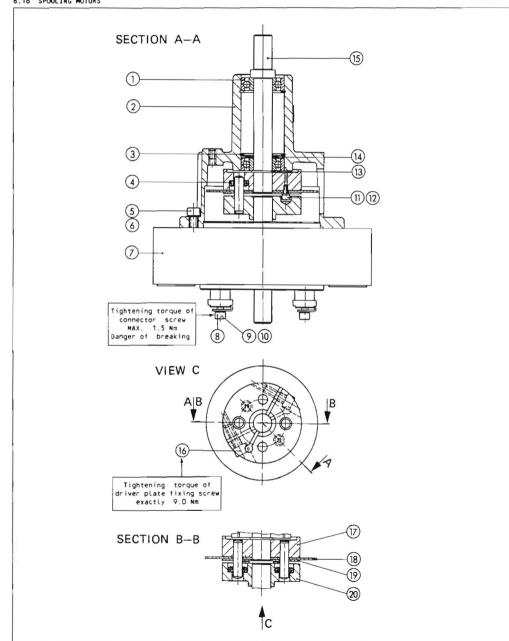
A820



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| Brake rollers: see 8.17  | _  | _ |    |              |                         |               |  |
|--|----|---|----|--------------|-------------------------|---------------|--|
| 1 1.080.230.00 Brake assembly compt. (* = not included)  1 1.080.240.00 Brake assembly compt. (right included)  2 2 2 1.53.0457 Atten screw M4x1  2 2 2 23.01.1043 Washer  2 2 2 24.16.1040 Fin washer  01 1 1 1.080.230.01 Support bolt  02 7 7 24.16.1040 Fin washer  03 1 1 22.01.8040 Hexagonal nut M64 4 24.16.3032 Circtip  05 1 1 1.080.230.05 Tension spring  06 1 1 1.080.230.06 Tension spring  07 1 1 1.080.230.08 Prake band compt.  08 1 1 1.820.090.01 Strip  10 2 2 21.53.0471 Atten screw M4x1.  11 1 25.16.2106 Spring pin  12 1 1 1.080.230.02 Adjusting bolt  13 2 2 37.01.0102 Disc spring  14 1 1 1.080.112.02 Tension spring  15 1 1 1.080.236.00 Brake lever  16 1 1 1.014.753.00 Armature compt.  17 1 1 1.014.753.00 Brake chassis righ  19 2 2 23.01.1043 Washer  20 4 4 21.53.0454 Atten screw M4x1.  | L  | a | TY | ORDER NUMBER | PART NAME               | SPECIFICATION |  |
| (* = not included)  1 1.080.240.00 Brake assembly compl. right 2=2 21.53.0457 Allen screw M4x1  2=2 23.01.1043 Washer  2=2 24.16.1040 Fin washer  01 1 1.080.230.01 Support bolt 02 7 7 24.16.1040 Fin washer  03 1 1 22.01.8040 Hexagonal nut M 04 4 4 24.16.3032 Circlip 05 1 1.080.230.05 Tension spring 06 1 1.080.230.06 Tension spring 07 1 1.080.230.00 Tension spring 07 1 1.820.090.02 Brake band compl. 08 1 1 1.820.090.01 Strip 10 2 2 21.53.0471 Allen screw M4x1. 11 1 25.16.2106 Spring pin 12 1 1.080.230.02 Adjusting bolt 13 2 2 37.01.0102 Disc spring 14 1 1.080.330.00 Brake lever 16 1 1.080.236.00 Brake lever 16 1 1.080.236.00 Brake lever 16 1 1.080.233.00 Brake lever 16 1 1.080.233.00 Brake chassis left 1.080.233.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Allen screw M4x1.  | L  | L |    |              | Brake rollers: see 8.17 |               |  |
| (* = not included)  2*2  |    | 1 |    | 1.080.230.00 |                         | left          |  |
| 2=2 23.01.1043 Washer  2=2 24.16.1040 Fin washer  01 1 1 1.080.230.01 Support bolt  02 7 7 24.16.1040 Fin washer  03 1 1 22.01.8040 Hexagonal nut  |    |   |    | 1.080.240.00 |                         | right         |  |
| 2=2 24.16.1040 Fin washer  01 1 1 1.080.230.01 Support bolt  02 7 7 24.16.1040 Fin washer  03 1 1 22.01.8040 Hexagonal nut   |    |   |    | 21.53.0457   | Allen screw             | M4x12         |  |
| 01 1 1 1 1.080.230.01 Support bolt 02 7 7 24.16.1040 Fin washer 03 1 1 22.01.8040 Hexagonal nut  |    | 2 | *2 | 23.01.1043   | Washer                  |               |  |
| 02 7 7 24.16.1040 Fin washer  03 1 1 22.01.8040 Hexagonal nut M  04 4 4 24.16.3032 Circlip  05 1 1 1.080.230.05 Tension spring  06 1 1 1.080.238.00 Brake band compt.  08 1 1 1.820.090.02 Brake band guide  09 1 1 1.820.090.01 Strip  10 2 2 21.53.0471 Allen screw M4x1.  11 1 25.16.2106 Spring pin  12 1 1 1.080.230.02 Adjusting bolt  13 2 2 37.01.0102 Disc spring  14 1 1 1.080.112.02 Tension spring  15 1 1 1.080.236.00 Brake lever  16 1 1 1.014.753.00 Armature compt.  17 1 1 1.014.753.00 Brake chassis Left 1.080.233.00 Brake chassis righ  19 2 2 23.01.1043 Washer  20 4 4 21.53.0454 Allen screw M4x1.  |    | 2 | *2 | 24.16.1040   | Fin washer              |               |  |
| 03   | 01 | 1 | 1  | 1.080.230.01 | Support bolt            |               |  |
| 04 4 4 24.16.3032 Circlip 05 1 1 1.080.230.05 Tension spring 06 1 1 1.080.238.00 Brake band compt. 08 1 1 1.820.090.01 Strip 10 2 2 21.53.0471 Atten screw M4x1. 11 1 25.16.2106 Spring pin 12 1 1 1.080.230.02 Adjusting bott 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake tever 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.235.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atten screw M4x1  | 02 | 7 | 7  | 24.16.1040   | Fin washer              |               |  |
| 05 1 1 1 1.080.230.05 Tension spring 06 1 1 1.080.230.06 Tension spring 07 1 1 1.080.238.00 Brake band compt. 08 1 1 1.820.090.02 Brake band guide 09 1 1 1.820.090.01 Strip 10 2 2 21.53.0471 Atten screw M4x1. 11 1 1 25.16.2106 Spring pin 12 1 1 1.080.230.02 Adjusting bolt 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake tever 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis tef 1 1.080.233.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atten screw M4x1   | 03 | 1 | 1  | 22.01.8040   | Hexagonal nut           | M4            |  |
| 06   1   1   1.080.230.06   Tension spring   07   1   1   1.080.238.00   Brake band compt.   08   1   1   1.820.090.02   Brake band guide   09   1   1   1.820.090.01   Strip   10   2   2   21.53.0471   Atten screw   M4x1.   11   1   25.16.2106   Spring pin   12   1   1   1.080.230.02   Adjusting bolt   13   2   2   37.01.0102   Disc spring   14   1   1   1.080.236.00   Brake tever   16   1   1.080.236.00   Brake tever   16   1   1.014.753.00   Armature compt.   17   1   1.080.233.00   Brake chassis   1   1   1   1   1   1   1   1   1 | 04 | 4 | 4  | 24.16.3032   | Circlip                 |               |  |
| 07 1 1 1 1.080.238.00 Brake band compt. 08 1 1 1.820.090.01 Brake band guide 09 1 1 1.820.090.01 Strip 10 2 2 21.53.0471 Atten screw M4x1. 11 1 25.16.2106 Spring pin 12 1 1 1.080.230.02 Adjusting bolt 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake tever 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis tef 1 1.080.233.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atten screw M4x1   | 05 | 1 | 1  | 1.080.230.05 | Tension spring          |               |  |
| 08 1 1 1.820.090.02 Brake band guide  09 1 1 1.820.090.01 Strip  10 2 2 21.53.0471 Allen screw M4x1.  11 1 25.16.2106 Spring pin  12 1 1 1.080.230.02 Adjusting bolt  13 2 2 37.01.0102 Disc spring  14 1 1 1.080.112.02 Tension spring  15 1 1 1.080.236.00 Brake lever  16 1 1 1.014.753.00 Armature compl.  17 1 1 1.014.750.00 Solenoid  18 1 1.080.233.00 Brake chassis left 1.080.243.00 Brake chassis righ  19 2 2 23.01.1043 Washer  20 4 4 21.53.0454 Allen screw M4x1  | 06 | 1 | 1  | 1.080.230.06 | Tension spring          |               |  |
| 09 1 1 1.820.090.01 Strip 10 2 2 21.53.0471 Atten screw M4x1. 11 1 25.16.2106 Spring pin 12 1 1 1.080.230.02 Adjusting bott 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake Lever 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.235.00 Brake chassis Left 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atten screw M4x1   | 07 | 1 | 1  | 1.080.238.00 | Brake band compl.       |               |  |
| 10 2 2 21.53.0471 Allen screw M4x1. 11 1 1 25.16.2106 Spring pin 12 1 1 1.080.230.02 Adjusting bolt 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake Lever 16 1 1 1.014.753.00 Armature compl. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis Left 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Allen screw M4x1   | 08 | 1 | 1  | 1.820.090.02 | Brake band guide        |               |  |
| 11   | 09 | 1 | 1  | 1.820.090.01 | Strip                   |               |  |
| 12   | 10 | 2 | 2  | 21.53.0471   | Allen screw             | M4x14         |  |
| 13 2 2 37.01.0102 Disc spring 14 1 1 1.080.112.02 Tension spring 15 1 1 1.080.236.00 Brake Lever 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis Left 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atten screw M4xx   | 11 | 1 | 1  | 25.16.2106   | Spring pin              |               |  |
| 14   1   1   1.080.112.02   Tension spring   | 12 | 1 | 1  | 1.080.230.02 | Adjusting bolt          |               |  |
| 15   1   1   1.080.236.00   Brake Lever   16   1   1   1.014.753.00   Armature compt.   17   1   1   1.014.750.00   Solenoid   18   1   1.080.233.00   Brake chassis   Left   1.080.243.00   Brake chassis   righ   19   2   2   23.01.1043   Washer   20   4   4   21.53.0454   Atlen screw   M4x1   21   1   1.080.120.15   Rubber damping hose  | 13 | 2 | 2  | 37.01.0102   | Disc spring             | _             |  |
| 16 1 1 1.014.753.00 Armature compt. 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis Lef 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Atlen screw M4x1   | 14 | 1 | 1  | 1.080.112.02 | Tension spring          |               |  |
| 17 1 1 1.014.750.00 Solenoid 18 1 1.080.233.00 Brake chassis Lef 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Allen screw M4xi 21 1 1 1.080.120.15 Rubber damping hose   | 15 | 1 | 1  | 1.080.236.00 | Brake lever             |               |  |
| 18 1 1.080.233.00 Brake chassis Lef 1.080.243.00 Brake chassis righ 19 2 2 23.01.1043 Washer 20 4 4 21.53.0454 Allen screw M4xi 21 1 1 1.080.120.15 Rubber damping hose  | 16 | 1 | 1  | 1.014.753.00 | Armature compl.         |               |  |
| 1 1.080.243.00 Brake chassis righ<br>19 2 2 23.01.1043 Washer<br>20 4 4 21.53.0454 Atten screw M4xi<br>21 1 1 1.080.120.15 Rubber damping hose   | 17 | 1 | 1  | 1.014.750.00 | Solenoid                |               |  |
| 20 4 4 21.53.0454 Atlen screw M4xi 21 1 1 1.080.120.15 Rubber damping hose   | 18 | 1 | 1  |              |                         |               |  |
| 21 1 1 1.080.120.15 Rubber damping hose  | 19 | 2 | 2  | 23.01.1043   | Washer                  |               |  |
|  | 20 | 4 | 4  | 21.53.0454   | Allen screw             | M4×6          |  |
| 22 1 1 54.02.0400 Connector  | 21 | 1 | 1  | 1.080.120.15 | Rubber damping hose     |               |  |
| 1 1 1 1  | 22 | 1 | 1  | 54.02.0400   | Connector               |               |  |

8.16 SPOOLING MOTORS



| _  |  | 1   | ,  |
|----|--|---|--|
|    | QTY  | ORDER NUMBER  | PART NAME SPECIFICATION  |
|    | 1  | 1.820.190.00  | Spooling motor compl. 1/4", 1/2" (* = not included)  |
|    | 3*   | 21.53.0321  | Allen screw M5x14  |
|    | 3*   | 24.16.1050  | Fin washer   |
| 01 | 2  | 41.99.0113  | Ball bearing   |
| 02 | 1  | 1.820.190.01  | Bearing case   |
| 03 | 2  | 24.16.4280  | Retaining ring for bore  |
| 04 | 4  | 31.05.0002  | 0-ring   |
| 05 | 4  | 21.53.0507  | Allen screw M5x12  |
| 06 | 4  | 24.16.1050  | Fin washer   |
| 07 | 1  | 1.820.191.00  | Spooling motor   |
| 08 | 2  | 1.820.191.01  | Carbon brush compl.  |
| 09 | 2  | 21.53.0455  | Allen screw M4x8   |
| 10 | 2  | 24.16.1040  | Fin washer   |
| 11 | 2  | 21.53.0354  | Allen screw M3x6   |
| 12 | 2  | 24.16.1030  | Fin washer   |
| 13 | 1  | 24.16.5120  | Retaining ring for shaft   |
| 14 | 2  | 37.02.0209  | Disc spring  |
| 15 | 1  | 1.820.190.03  | Shaft  |
| 16 | 2  | 21.54.0522  | Allen screw M5x1c  |
| 17 | 1  | 1.820.919.00  | Upper driver plate compl.  |
| 18 | 1  | 1.820.190.06  | Encoding disc  |
| 19 | 1  | 1.820.190.07  | Spec. washer for encoding disc   |
| 20 | 1  | 1.820.920.00  | Lower driver plate compl.  |
|    | 02<br>03<br>04<br>05<br>06<br>07<br>08<br>09<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18 | 3* 01 2 02 1 03 2 04 4 05 4 06 4 07 1 08 2 09 2 10 2 11 2 12 2 13 1 14 2 15 1 16 2 17 1 18 1 19 1 | 1 1.820.190.00  3* 21.53.0321  3* 24.16.1050  01 2 41.99.0113  02 1 1.820.190.01  03 2 24.16.4280  04 4 31.05.0002  05 4 21.53.0507  06 4 24.16.1050  07 1 1.820.191.00  08 2 1.820.191.01  09 2 21.53.0455  10 2 24.16.1040  11 2 21.53.0354  12 2 24.16.1030  13 1 24.16.5120  14 2 37.02.0209  15 1 1.820.190.03  16 2 21.54.0522  17 1 1.820.190.06  19 1 1.820.190.07 |

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|    | QTY | ORDER NUMBER | PART NAME           | SPECIFICATION |
|----|-----|--------------|---------------------|---------------|
| 01 | 1   | 1.820.200.00 | Brake roller compl. |               |
| 02 | 2   | 24.16.6120   | Star washer         |               |
| 03 | 1   | 1.820.090.03 | Pressure disc       |               |
| 04 | 1   | 24.16.1050   | Fin washer          |               |
| 05 | 1   | 21.53.0521   | Allen screw         | M5x14         |

|    | QTY | ORDER NUMBER | PART NAME              | SPECIFICATION |
|----|-----|--------------|------------------------|---------------|
|    | 1   | 1.013.341.00 | Adapter support        |               |
| 06 | 3   | 1.013.325.04 | Release catch          |               |
| 07 | 3   | 21.51.8356   | Round head allen screw | M3x10         |
| 08 | 3   | 24.16.1030   | Fin washer             |               |
| 09 | 1   | 1.013.341.01 | Base plate             |               |
| 10 | 1   | 1.013.325.01 | Release ring           |               |
| 11 | 1   | 1.013.325.02 | Guide ring             |               |
| 12 | 3   | 1.010.039.21 | Centring screw         | M4×10         |
| 13 | 3   | 24.16.1040   | Fin washer             |               |
| 14 | 1   | 37.02.0216   | Disc spring            |               |
| 15 | 1   | 1.013.325.03 | Rubber ring            |               |

|    | QTY | ORDER NUMBER | PART NAME SPECIFIC           | ATION |
|----|-----|--------------|------------------------------|-------|
|    | 1   | 1,013.326.00 | Three-pronged "CINE" adapter |       |
| 16 | 3   | 21.51.2355   | Countersunk allen head screw | M3x8  |
| 17 | 1   | 1.013.342.02 | Adapter plate                |       |
| 18 | 1   | 1.013.326.04 | Contact spring               |       |
| 19 | 1   | 1.013.342.03 | 3-pronged bolt               |       |
| 20 | 1   | 21.53.0454   | Alien screw                  | M4x6  |
| 21 | 1   | 24.16.2040   | Serrated lock washer         |       |
| 22 | 3   | 1.011.010.05 | Pressure spring              |       |
| 23 | 1   | 1.013.342.01 | Bottom cover                 |       |
| 24 | 3   | 1.013.326.03 | Spring catch                 |       |
| 25 | 1   | 1.013.326.06 | Spec.screw                   |       |
| 26 | 1   | 1.062.390.01 | Guide bush                   |       |
| 27 | 1   | 1.736.794.03 | Pressure spring              |       |

|    | OTY | ORDER NUMBER | PART NAME                            | SPECIFICATION |
|----|-----|--------------|--------------------------------------|---------------|
|    | 1   | 1.013.347.00 | Three-pronged "C<br>like 1.013.326.0 |               |
| 19 |     |              | Not used                             |               |
| 25 |     |              | Not used                             |               |
| 26 |     |              | Not used                             |               |
| 28 | 1   | 1.013.347.01 | Driver bolt                          |               |
| 29 | 1   | 1.013.347.02 | Guide bush                           |               |
| 30 | 1   | 1.013.347.03 | Knurled nut                          |               |
| 31 | 1   | 1.010.108.23 | Washer                               |               |
| 32 | 1   | 1.013.347.04 | Spec. screw                          |               |

|    | QTY | ORDER NUMBER | PART NAME SPECIF                                | ICATION |  |
|----|-----|--------------|---|---------|--|
|    | 1   | 1.013.345.00 | Precision NAB adapter                           | 1/2     |  |
| 33 | 3   | 21.51.2355   | Countersunk allen head screw                    | M3×8    |  |
| 34 | 3   | 21.44.7355   | Cross-recessed pan head scrape<br>point screw M |         |  |
| 35 | 3   | 1.013.326.03 | Spring catch                                    |         |  |
| 36 | 3   | 1.011.010.05 | Pressure spring                                 |         |  |
| 37 | 1   | 1.013.344.01 | Push button                                     |         |  |
| 38 | 4   | 37.02.0203   | Disc spring                                     |         |  |
| 39 | 1   | 1.013.345.01 | Driver NAB                                      | 1/2     |  |
| 40 | 1   | 21.99.0136   | Set screw                                       | M4x12   |  |
| 41 | 1   | 21.53.0454   | Allen screw                                     | M4x     |  |
| 42 | 1   | 24.16.2040   | Serrated lock washer                            |         |  |
| 43 | 1   | 1.013.342.01 | Bottom cover                                    |         |  |
| 44 | 1   | 1.013.342.02 | Adapter plate                                   |         |  |
| 45 | 2   | 1.013.336.02 | Spacer  |         |  |
| 46 | 1   | 1.013.344.03 | MAB adapter (incl. pos. 42)                     |         |  |
| 47 | 1   | 31.99.0123   | 0-ring  |         |  |
| 48 | 1   | 1.013.344.04 | Handle  |         |  |
| 49 | 1   | 1.013.326.04 | Contact spring                                  |         |  |

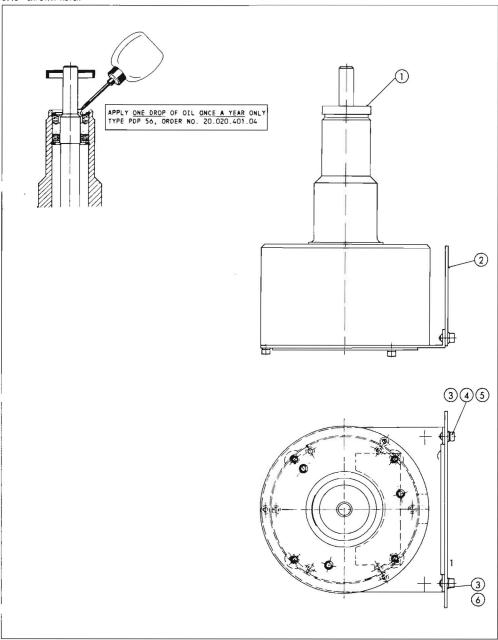
|    | QTY | ORDER N | UMBER  | PART NAME                      | SPECIFICATION |
|----|-----|---------|--------|--------------------------------|---------------|
|    | 1   | 1.013.3 |        | Precision NAB<br>like 1.013.34 |               |
| 39 | 1   | 1.013.3 | 844.02 | Driver NAB                     | 1/4"          |
| 45 |     |         |        | not used                       |               |

|    | QTY | ORDER NUMBER | PART NAME SPECIFICATIO           | NC |  |
|----|-----|--------------|----------------------------------|----|--|
|    | 1   | 1.013.343.00 | Open reel "DIN" adapter 1/4      |    |  |
| 50 | 1   | 25.06.8263   | Straight pin                     |    |  |
| 51 | 1   | 1.013.003.03 | Pressure spring                  |    |  |
| 52 | 1   | 1.013.343.02 | Cam shaft                        |    |  |
| 53 | 1   | 1.013.342.01 | Bottom cover                     |    |  |
| 54 | 1   | 1.013.343.01 | Adapter plate                    |    |  |
| 55 | 2   | 1.013.343.03 | Driver bolt                      |    |  |
| 56 | 5   | 1.011.010.05 | Pressure spring                  |    |  |
| 57 | 1   | 1.013.343.06 | Knob                             |    |  |
| 58 | 1   | 21.99.0136   | Allen set screw M4x1             | 12 |  |
| 59 | 3   | 1.013.326.03 | Spring catch                     |    |  |
| 60 | 3   | 21.51.2355   | Countersunk allen head screw M3x | ĸ8 |  |
| 61 | 1   | 1.013.326.04 | Contact spring                   |    |  |

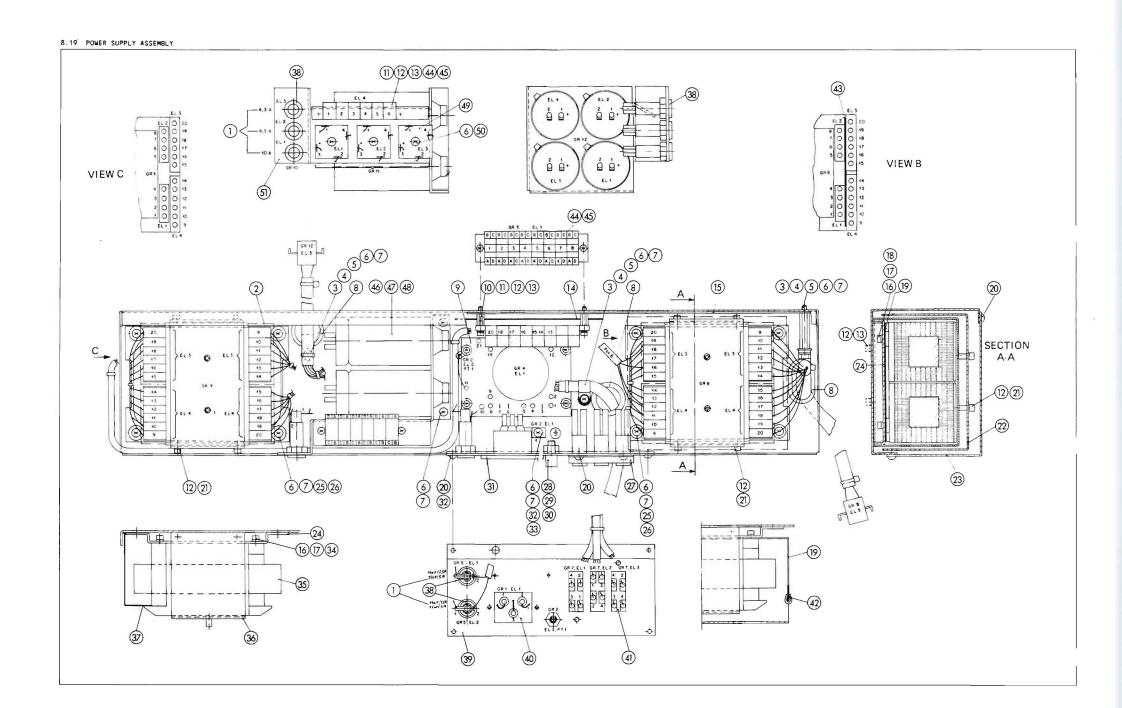
|    | QTY | ORDER  | NUMBER | PART  | NAME        |        | SPECIFICATION |
|----|-----|--------|--------|-------|-------------|--------|---------------|
| 62 | 1   | 1.013. | 328.00 | Panca | ake platter | compl. |               |

**25TUDER** A820 8/33





|    | QTY | ORDER NUMBER | PART NAME                                | SPECIFICATION |
|----|-----|--------------|--|---------------|
|    | 1   | 1.021.601.81 | Capstan motor 1/4", 1 (* = not included) | /2*           |
|    | 3*  | 1.010.035.21 | Spec. screw                              | M4            |
|    | 3*  | 24.16.1050   | Fin washer                               |               |
| 01 | 1   | 1.021.601.07 | Bearing cap                              |               |
| 02 | 1   | 1.021.695.81 | Tacho sensor PCB                         |               |
| 03 | 2   | 21.53.0353   | Allen screw                              | M3×5          |
| 04 | 1   | 24.16.1030   | Fin washer                               |               |
| 05 | 1   | 23.01.1032   | Washer                                   |               |
| 06 | 1   | 24.16.2030   | Serrated lock washer                     |               |



|   | _  |         |                         |                                    |            |
|---|----|---------|-------------------------|------------------------------------|------------|
|   |    | QTY     | ORDER NUMBER            | PART NAME SPECIFI                  | CATION     |
|   |    | 1       | 1.820.510.00            | Power supply<br>(* = not included) |            |
|   |    | 6*      | 1.010.034.21            | Countersunk allen head screw       | M4x8       |
|   |    | 1*      | 21.55.0455              | Allen screw                        | M4×8       |
|   |    | 2*      | 24.16.1040              | Fin washer                         |            |
|   |    | 2*      | 24.16.2040              | Serrated lock washer               |            |
|   |    | 3*      | 54.02.0343              | Flat connector                     |            |
|   |    | 4*      | 21.53.0454              | Allen screw                        | M4×6       |
|   |    | 2*      | 1.820.500.33            | Mounting bracket                   |            |
|   |    | 1*      | 1.820.500.32            | Mounting bracket                   | left       |
|   |    | 1*      | 1.820.500.34            | Cable channel                      |            |
|   |    | 1*      | 1.820.738.00            | PARALLEL REMOTE INTERFACE PCB      |            |
|   |    | 1*      | 1.820.500.26            | Guide rail                         | right      |
|   |    | 1*      | 1.820.500.27            | Guide rail                         | left       |
|   |    | 2*      | 1.088.300.07            | Slide rail                         | 2          |
|   | 01 | 2 2 2 1 |                         |                                    |            |
|   | 02 | 8       | 1.010.044.63            | Protection against contact         |            |
|   | 03 | 3       | 1.010.124.27            | Hex stud bolt                      |            |
|   | 04 | 3       | 23.01.3043              | Washer                             | _          |
|   | 05 | 3       | 35.03.0120              | Support                            |            |
|   | 06 | 21      | 24.16.1040              | Fin washer                         |            |
|   | 07 | 15      | 21.53.0455              | Allen screw                        |            |
|   | 08 | 3       | 31.01.0105              | PVC grommet                        |            |
|   | 09 | 1       | 468 0 2002 14-0020 1500 | LINE FILTER PCB                    |            |
|   | 10 | 2       | 1.010.106.27            | Hex stud bolt                      |            |
|   | 11 | 4       | 23.01.1032              | Washer                             |            |
|   | 12 | 18      | 24.16.1030              | Fin washer                         |            |
|   | 13 | 8       | 21.53.0355              | Allen screw                        | M3x8       |
| - | 14 | 1       | 1.820.510.07            | Insulation                         |            |
|   | 15 | 1       | 1.820.510.16            | Screening sheet                    |            |
|   | 16 | 8       | 22.99.0117              | Square nut                         | <b>M</b> 5 |
|   | 17 | 8       | 24.16.1050              | Fin washer                         |            |
|   | 18 | 4       | 21.53.0506              | Allen screw                        | M5×10      |
|   |    |         |                         |                                    |            |

| 19 | 1  | 1.820.510.17 | Transformer screening        | bottom |
|----|----|--------------|------------------------------|--------|
| 20 | 14 | 1.010.007.21 | Round head allen screw       | M4x8   |
| 21 | 10 | 21.53.0353   | Allen screw                  | M3x5   |
| 22 | 1  | 1.820.510.18 | Transformer screening        | upper  |
| 23 | 1  | 1.820.510.02 | Cover                        |        |
| 24 | 2  | 1.820.510.03 | Transformer support          |        |
| 25 | 8  | 1.780.110.01 | Rubber grommet               |        |
| 26 | 8  | 1.820.510.13 | Spacer                       |        |
| 27 | 1  | 1.820.510.11 | Voltage selector cover       |        |
| 28 | 1  | 1.010.001.53 | Ground terminal              |        |
| 29 | 1  | 24.16.2060   | Serrated Lock washer         |        |
| 30 | 1  | 1.010.030.22 | Hexagonal nut                | Mó     |
| 31 | 2  | 21.53.2354   | Countersunk allen head screw | M3x6   |
| 32 | 3  | 24.16.2040   | Serrated Lock washer         |        |
| 33 | 2  | 54.02.0343   | Flat connector               |        |
| 34 | 4  | 21.53.0505   | Allen screw                  | M3×8   |
| 35 | 2  | 1.820.520.00 | Mains transformer            |        |
| 36 | 2  | 1.820.510.04 | Transformer cover            |        |
| 37 | 1  | 1.820.510.14 | Lateral insulation           |        |
| 38 | 5  | 53.03.0106   | Protection against contact   | _      |
| 39 | 1  | 1.820.510.09 | Mains connector panel        |        |
| 40 | 1  | 54.42.0001   | Mains connector              |        |
| 41 | 3  | 55.12.0001   | Switch                       |        |
| 42 | 2  | 1.067.660.03 | Border protection            |        |
| 43 | 1  | 1.820.510.07 | Insulation                   |        |
| 44 | 14 | 53.05.0114   | Terminal block               |        |
| 45 | 2  | 53.05.0145   | Terminal suppport            |        |
| 46 | 4  | 59.26.7103   | Capacitor 10'000 µF/63 V     |        |
| 47 | 4  | 59.20.0107   | Insulating washer            |        |
| 48 | 4  | 59.20.0109   | Insulating nut               |        |
| 49 | 3  | 70.01.0231   | Bridge rectifier 100 V/35 A  |        |
| 50 | 3  | 21.53.0471   | Allen screw                  | M4×14  |
| 51 | 1  | 1.820.510.05 | Support                      |        |
|    |    |              |                              |        |

#### 8.20 CONNECTOR PANELS

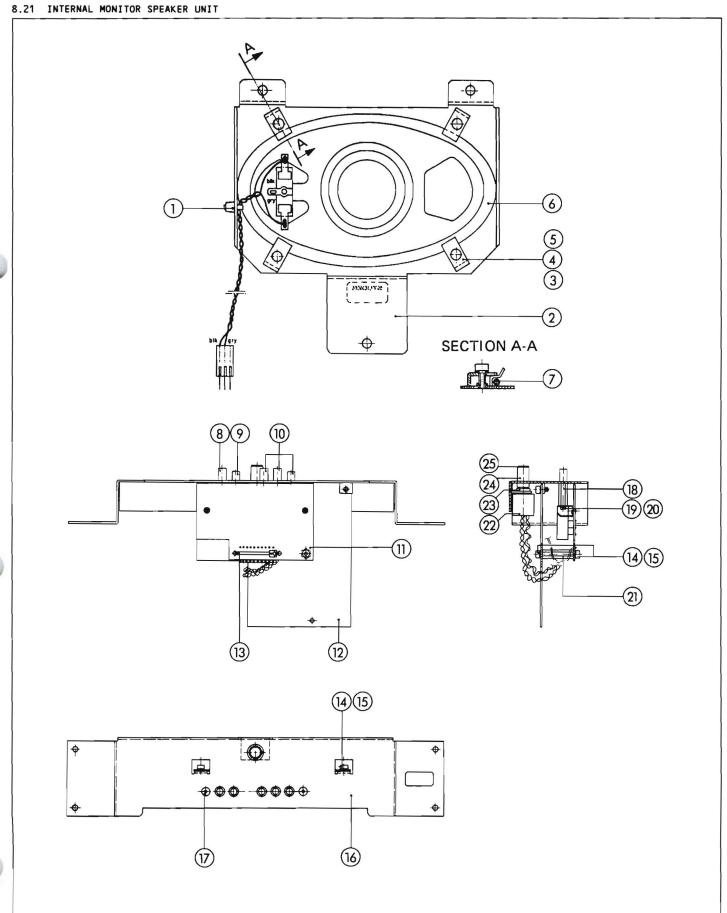
(without illustrations; self-adhesive labels see 8.23)

|    | QTY | ORDER NU | MBER F  | ART NAME   |                | SPECIFICATION |
|----|-----|----------|---------|------------|----------------|---------------|
|    | 1   | 1.820.50 |         |            | panel "LINE"   |               |
|    | 1   | 54.21.   |         |            | , 3-pole, fer  |               |
|    | 1   |          |         |            | , 3-pole, ma   |               |
|    | 1   | 1.820.74 |         | NTERFEREN  | ICE FILTER PC  | 3 (including  |
|    | 2   | 20.99.   | 0103    | hread-for  | ming cross-re  | ecessed pan   |
|    | •   |          | 1       | ead screw  |                | D2.2x5        |
|    | 4   | 21.27.   | 3354 (  | ross-rece  | essed counter: | sunk oval     |
|    | -   |          | 1       | nead screw |                | M3x5          |
|    | 2   | 1.010.00 | 07.21 F | Round head | d allen screw  | M4x8          |
| or | 1   | 1.820.50 | 1.00    | Connector  | panel "LINE"   | LEMO, compl.  |
|    | 2   |          |         |            | d allen screw  |               |
| or | 1   | 1.820.50 | 00.23   | oummy pane | el, 55 mm      |               |
|    | 2   | 1.010.00 | 7.21    | Round head | allen screw    | M4x8          |

|    | 1 |              | Noise reduction system int<br>(optional modification kit<br>to instruction sheet 10.27 | ; refer |
|----|---|--------------|--|---------|
|    | 4 | 1.010.007.21 | Round head allen screw   | M4x8    |
| or | 1 |              | Dummy panel, 95 mm<br>Round head allen screw   | M4×8    |

|    | 1          | 1.820.560.00  | Connector panel "REMOTE CONTROLS" (parts marked with m included)   |
|----|------------|---------------|--|
|    | 6          | 1.010.007.21  | Round head allen screw M4x8  |
|    | 1          | 20.820.345.00 | Serial interface for autolocator<br>and remote timer/control (optional<br>modification kit, refer to in-     |
|    | 2          | 1.010.025.21  | struction sheet 10.27.0310) Round head allen screw M3x6  |
| or | 1=<br>2=   |               | Cover plate "AUTOLOCATOR/REM.TIMER" Round head allen screw M3x6  |
|    | 1 <b>a</b> |               | Cover plate "SYNCHRONIZER" Round head allen screw M3x6   |
|    | 1          | 20.820.342.00 | Serial interface RS232 (optional modification kit, refer to in-  |
|    | 4=         | 1.010.025.21  | struction sheet 10.27.0280)<br>Round head allen screw M3x6   |
| or | 1          | 20.820.343.00 | Serial interface SMPTE/EBU (RS422)/<br>(optional modification kit, refer<br>to instruction sheet 10.27.0290) |
|    | 4=         | 1.010.025.21  | Round head allen screw M3x6  |
| or | 1 <b>a</b> |               | Cover plate "SMPTE/EBU BUS - RS232"<br>Round head allen screw M3x6   |
|    | •          |               | Mains connector, ground terminal: refer to 8.19  |

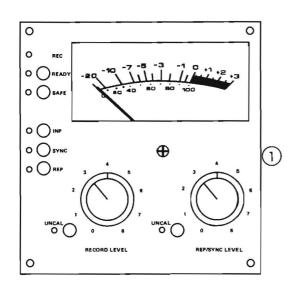


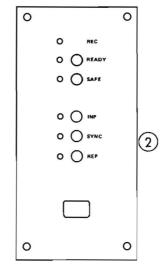


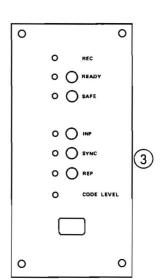
|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION                     |
|----|-----|--------------|---|
|    | 1   | 1.820.234.00 | Monitor loudspeaker unit (* = not included) |
|    | 3*  | 21.53.0455   | Allen screw M4x8                            |
|    | 3*  | 24.16.1040   | Fin washer                                  |
| 01 | 1   | 32.03.0109   | Cable tie                                   |
| 02 | 1   | 1.820.234.01 | Support                                     |
| 03 | 4   | 1.038.822.15 | Clip  |
| 04 | 4   | 21.53.0355   | Allen screw M3x8                            |
| 05 | 4   | 24.16.1030   | Fin washer                                  |
| 06 | 1   | 71.01.0108   | Loudspeaker 76x130 mm, 15 Ω, 3 W            |
| 07 | 1   | 31.05.0064   | 0-ring                                      |

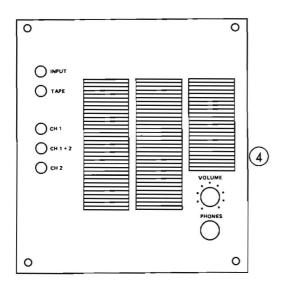
|    | QTY | ORDER NUMBER | PART NAME SPECIFICATION                      |
|----|-----|--------------|--|
|    | 1   | 1.820.235.00 | Monitor operating unit (* = not included)    |
|    | 2*  | 21.53.0455   | Allen screw M4x8                             |
|    | 2*  | 24.16.1040   | Fin washer                                   |
|    | 2*  | 1.010.136.27 | Threaded stud                                |
| 08 | 1   | 1.810.320.03 | Push button long blue                        |
| 09 | 1   | 1.810.320.05 | Push button long white                       |
| 10 | 3   | 1.810.320.02 | Push button long dark grey                   |
| 11 | 1   | 1.820.796.00 | SOURCE SELECTOR PCB                          |
| 12 | 1   | 1.820.860.00 | MONITOR AMPLIFIER PCB                        |
| 13 | 1   | 35.03.0109   | Cable tie                                    |
| 14 | 4   | 21.53.0354   | Allen screw M3x6                             |
| 15 | 4   | 24.16.1030   | Fin washer                                   |
| 16 | 1   | 1.820.235.01 | Mounting bracket                             |
| 17 | 2   | 21.51.2354   | Countersunk allen head screw M3x6            |
| 18 | 2   | 1.820.235.02 | Threaded stud                                |
| 19 | 2   | 21.01.0202   | Slotted cheese head screw M2x4               |
| 20 | 2   | 24.16.1020   | Fin washer                                   |
| 21 | 1   | 1.010.050.27 | Threaded stud                                |
| 22 | 1   | 1.912.001.34 | Potentiometer $2x10 \text{ k}\Omega$ , +log. |
| 23 | 1   | 1.010.032.22 | Slotted nut M7x0.75                          |
| 24 | 1   | 42.01.0203   | Knob dark grey, Ø 10 mm                      |
| 25 | 1   | 42.01.0251   | Cap dark grey, to knob Ø 10 mm               |

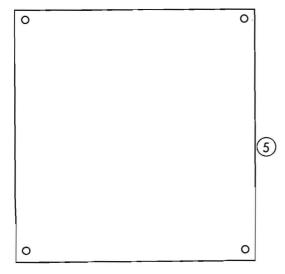
# 8.22 PANELS

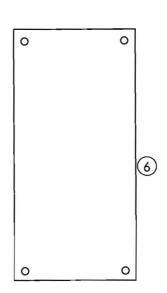












|    | QTY                                | ORDER NUMBER   | PART NAME SPECIFICATION  |
|----|------------------------------------|--|--|
| 01 | QTY  1 4 1 2 2 2 2 1 1 1 1 1 1 1 1 | 1.810.320.81<br>1.010.025.21<br>1.810.321.81<br>42.01.0150<br>42.01.0151<br>1.810.320.09<br>1.810.320.08<br>37.02.0210<br>1.810.320.02<br>1.810.320.03<br>1.810.320.04<br>1.810.320.05<br>1.810.320.05<br>1.810.320.07 | VU panel Round head allen screw M3x6 Front cover VU panel Knob alu Knob cover Indicator ring Retaining ring Disc spring Push button, long dark grey Push button, long blue Push button, long yellow Push button, long white Push button, long green Push button, long red              |
|    | 2<br>1<br>2<br>1<br>1              | 51.02.0144<br>1.820.731.00<br>1.820.731.01<br>1.820.732.00   | Bulb 6 V / 30 mA to VU-meter<br>CALIBRATION PCB<br>Push button switch, locking<br>CHANNEL CONTROL PCB<br>Push button switch, 5-fold, non-<br>locking   |
| 02 | 1 1 1 1 1 1 1 1                    | 1.820.732.00<br>1.010.025.21<br>1.810.336.81<br>1.810.320.02<br>1.810.320.03<br>1.810.320.04<br>1.810.320.05   | Channel mode selector unit CHANNEL CONTROL PCB Round head allen screw M3x6 Front cover channel mode selector Push button, long dark grey Push button, long blue Push button, long yellow Push button, long white Push button, long green Self adhesive labels (see 8.23)               |
| 03 | 1 1 4 1 1 1 1 1 1                  | 1.820.735.00<br>1.010.025.21<br>1.810.338.00<br>1.810.320.02<br>1.810.320.03<br>1.810.320.04<br>1.810.320.05<br>1.810.320.05   | TC channel mode selector unit TC CHANNEL CONTROL PCB Round head allen screw M3x6 Front cover TC channel mode selector unit Push button, long dark grey Push button, long blue Push button, long yellow Push button, long white Push button, long green Self adhesive labels (see 8.23) |
| 04 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1      | 1.820.796.00<br>1.820.860.00<br>1.010.025.21<br>1.820.580.05<br>1.912.001.34<br>42.01.0203<br>42.01.0251   | Front cover external monitor unit Potentiometer Knob grey Cover dark grey Headphones socket Push button, long dark grey  |
| 05 | 1                                  | 1.810.002.03<br>1.010.025.21   | Dummy plate, 2 modules<br>Round head allen screw M3x6  |
| 06 | 1                                  | 1.810.002.04<br>1.010.025.21   |  |

## 8.23 LABELS

|   | <del></del>  |                     |  |                 |                       |               |                         |
|---|--|---------------------|--|-----------------|-----------------------|---------------|-------------------------|
|   | ent labels for:<br>ape recorders   |                     |  | LOCS            | 1.011.210.23          | WATCH         | 1.011.210.24            |
| ٥   | 1.080.260.14   | PLAY                | 1.080.260.15   | TRANS           | 1.011.210.25          | сит           | 1.011.210.26            |
|   | 1.080.260.16   |                     | 1.080.260.17   | LOC 4           | 1.011.210.27          | REV           | 1.011.210.28            |
| REC   | (RED)  | STOP                | 1.080.200.17   | ROLL<br>BACK    | 1.011.210.29          | REM<br>CONTR  | 1.011.210.30            |
| EDIT  | 1.080.260.18   |                     |  | EDIT            | 1.011.210.31          | SET           | 1.011.210.32            |
| Col 4 odb   | <br>esive labels for:  |                     |  | SET<br>VARI     | 1.011.210.33          | VARI<br>SPEED | 1.011.210.34            |
| ■ Tape d<br>■ Remote  | esive <u>labets for:</u><br>eck remote control cabi<br>control cabinet (serial<br>control module (serial             | il)                 | 1.328.250.00<br>1.328.210.00<br>1.328.220.00                 | LIFTER          | 1.011.210.35          | SET           | 1.011.210.38<br>(BLACK) |
| ٥   | 1.011.210.02   | <b>PLAY</b> 1.011   | .210.03  | REHEA           | 1.011.210.41          | SPOT<br>ERASE | 1.011.210.42            |
| STOP  | 1.011.210.04   | REC 1.017           | .210.05  | FADER<br>START  | 1.011.210.43          | LAP           | 1.011.210.44            |
| Sal f-adh   | esive labels for:  |                     |  | BACK<br>SPACE   | 1.011.210.45          | HOLD          | 1.011.210.46            |
| <ul><li>A820 to</li><li>Tape do</li><li>Rem. t</li><li>Remote</li></ul> | ape recorders eck remote control cabi imer/lap mode display (     control cabinet (serial     control module (serial | serial)<br>nl)      | 1.328.250.00<br>1.328.270.00<br>1.328.210.00<br>1.328.220.00 | SPEED<br>SELECT | 1.011.210.48<br>(RED) | UN<br>LOAD    | 1.011.210.49<br>(RED)   |
| LIFTER  | 1.011.210.07   | LOC<br>START 1.011  | .210.08  | TRANS           | 1.011.210.30          |               |                         |
| FADER   | 1.011.210.09   | VARI<br>SPEED 1.011 | .210.10  |                 |                       |               |                         |
| REM<br>CONTR  | 1.011.210.11   | TAPE 1.011          | .210.13  |                 |                       |               |                         |

1.011.210.15

1.011.210.18

1.011.210.20

1.011.210.14

1.011.210.17

1.011.210.19

Self-adhesive labels for:
■ A820 tape recorders
■ Rem. timer/lap mode display (serial)
■ Remote control cabinet (serial)
■ Remote control module (serial) 190x203

1.328.270.00 1.328.210.00 1.328.220.00

| O FADER            |
|--------------------|
| 011.0              |
|                    |
| O FADER            |
| - Personal Control |

| ○ 15 IPS | ○ 30 IPS |         |      |     | O CCIR            | O TAPE A |            |         |
|----------|----------|---------|------|-----|-------------------|----------|------------|---------|
| O 16 IPS |          | O VARIS | MEED |     | O NAB             | O TAPE B | O REHEARSE | O FADER |
|          |          |         |      | 4 4 | The second second | 11441    |            |         |
|          |          | 4117    |      |     |                   |          | 1 920      | 0/4     |

| O 15 IPS | O 30 IPS  | O SAFE      | O STEREO | O CCIR | O TAPE A | ○ REMOT |
|----------|-----------|-------------|----------|--------|----------|---------|
| ○ 25 IPS | O 375 IPS | O VARISPEED | CHOM ()  | O NAB  | O TAPE B | O FADER |

| 1 | .328 | .210 | .07 |
|---|------|------|-----|
|   |      |      |     |

| ○ 15 IPS  | ○ 30 IPS   | O SAFE      | O STEREO | O CCIR | O TAPE A | O SPOT ERASE | O REMOTE |
|-----------|------------|-------------|----------|--------|----------|--------------|----------|
| ○ 7.6 IPS | ○ 1.75 IPS | O VARISPEED | CHOM ()  | O NAB  | O TAPE B | O REHEARSE   | O FADER  |

1.820.012.01

# Set of transparent labels for: ■ A820 tape recorders

1.820.090.36 :

| <b>↓</b> NEXT  | CURSOR            | CURSOR         |          |
|----------------|-------------------|----------------|----------|
| LAST           | STORE             | REMOTE         |          |
| 30 IPS         | 15 IPS            | 7.5 IPS        |          |
| 3.75 IPS       | FRAME/S<br>SELECT | R'HEARSE       |          |
| STEREO         | TAPE A            | CCIR           |          |
| MONO           | TAPE B            | NAB            |          |
| VARI<br>SPEEO  | SET<br>VARISP     | SET<br>TIMER   | <b>₽</b> |
| MASTER<br>SAFE | FADER<br>START    | SET<br>ADDRESS | TOWN T   |

## 1.820.090.37 :

| NEXT            | CURSOR            | CURSOR            | LAST             | STORE          | - 4               |                       |                    |
|-----------------|-------------------|-------------------|------------------|----------------|-------------------|-----------------------|--------------------|
| 30 IPS          | 15 IPS            | 7.5 IPS           | 3.75 IPS         | REMOTE         | SKIMMING          | LAP                   | UNLOAO             |
| R'HEARSE        | RESET             | LIFTER            | FAOER<br>REC     | FADER<br>PLAY  | SHUTTLE<br>A/B    | LIBRARY               | VS DISPI<br>FORMAT |
| SPEED<br>SELECT | 7.5 IPS           | 3.75<br>7.5 IPS   | 15<br>30 IPS     | VU<br>PPM      | DOLBY<br>HX       | TAPE<br>GUARO         | REVERSE            |
| STEREO<br>MONO  | TAPE A            | CCIR<br>NAB       | 100M             | ⇧              | SET<br>VARISP     | SET<br>ADDRESS        | SET<br>TIMER       |
| VARI<br>SPEED   | SPOT<br>ERASE     | FRAME/S<br>SELECT | OFFSET<br>SELECT | MASTER<br>SAFE | HOLD<br>REV. PLAY | TRANSFER<br>REV. PLAY | AUTO<br>INPUT      |
| BACK<br>SPACE   | DISPLAY<br>FORMAT | REV<br>PLAY       | FADER<br>START   | SHUTTLE<br>A/B | AUTO<br>STOP      | LIBRARY<br>WIND       | AUTO<br>MUTE       |

# Self-adhesive labels for: ■ A820 tape recorders

| AUDI   | O CH 1 |
|--------|--------|
| INPUT  | OUTPUT |
| AUDI   | 0 CH 1 |
| OUTPUT | INPUT  |
| AUDI   | O CH2  |
| INPUT  | OUTPUT |
| AUDI   | 0 CH2  |
| OUTPUT | INPUT  |
| TIME C | ODE CH |
| INPUT  | OUTPUT |
| TIME   | ODE CH |
| OUTPUT | INPUT  |

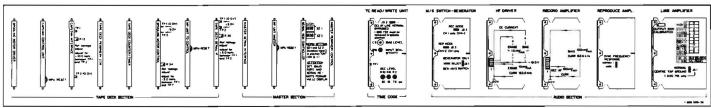
1.810.090.47



1.810.763.02

SMPTE EBU BUS RS 232 PARALLEL REMOTE SYNCHRONIZER AUTOLOCATOR REMOTE TIMER

1.820.560.07



1.820.500.38

1.820.500.30

BEFORE REMOVING OR INSERTING CARDS, MACHINE MUST BE SWITCHED OFF MINIMUM 5 SEC.

1.820.500.31

(1)

1.010.023.43

1.820.230.08

Transparent labels for:
■ Tape deck remote control module

1.328.255.00

Ø  $\triangleright$ STOP PLAY

REC

1.328.255.03

LIFTER

1.328.256.02

43.01.0104

## 8.24 FLAT CABLES, WIRE HARNESSES

(without illustrations)

| : R                         | ecorde | rs withou | ut overbr      | idge            |        |    |  |  |
|-----------------------------|--------|-----------|----------------|-----------------|--------|----|--|--|
| : Recorders with overbridge |        |           |                |                 |        |    |  |  |
| FROM<br>GRP ELM             |        | POLES     | FLAT<br>LENGTH | CABLE ORDER NO. | GRP EL |    |  |  |
| 20                          | 01     | 16        | 1.32 m         | 1.023.101.13    | 33     | 02 |  |  |
| 20                          | 02     | 16        | 1.32 m         | 1.023.101.13    | 30     | 02 |  |  |
| 20                          | 03     | 16        | 1.70 m         | 1.023.101.17    | 39     | 01 |  |  |
| 20                          | 05     | 16        | 1.32 m         | 1.023.101.13    | 31     | 03 |  |  |
| 20                          | 06     | 10        | 1.56 m         | 1.023.100.16    | 44     | 01 |  |  |
| 20                          | 07     | 16        | 1.70 m         | 1.023.101.17    | 46     | 01 |  |  |
| 20                          | 08     | 16        | 1.70 m         | 1.023.101.17    | 47     | 01 |  |  |
| 20                          | 09     | 10        | 1.56 m         | 1.023.100.16    | 36     | 01 |  |  |
| 20                          | 10     | 10        | 1.56 m         | 1.023.100.16    | 37     | 01 |  |  |
| 20                          | 11     | 10        | 1.56 m         | 1.023.100.16    | 45     | 01 |  |  |
| 20                          | 12     | 10        | 1.56 m         | 1.023.100.16    | 42     | 01 |  |  |
| 20                          | 13     | 10        | 1.56 m         | 1.023.100.16    | 43     | 01 |  |  |
| 20                          | 14     | 16        | 1.32 m         | 1.023.101.13    | 59     | 01 |  |  |
| 20                          | 15     | 40        | 1.80 m         | 1.023.104.18    | 50     | 01 |  |  |
| 20                          | 16     | 40        | 1.00 m         | 1.023.104.10    | 27     | 02 |  |  |
| 20                          | 17     | 26        | 1.36 m         | 1.023.152.14    | 60     | 02 |  |  |
| 20                          | 18     | 26        | 1.00 m         | 1.023.102.10    | 70     | 01 |  |  |
| 20                          | 19     | 16        | 1.00 m         | 1.023.101.10    | 28     | 02 |  |  |
| 27                          | 04     | 26        | 0.22 m         | 1.023.152.03    | 25     | 03 |  |  |
| 48                          | 01     | 26        | 0.45 m         | 1.023.102.04    | 50     | 02 |  |  |
| 70                          | 07     | 16        | 0.30 m         | 1.023.101.03    | 71     | 02 |  |  |

| Recorde      | ers with shelf and monitor loudspeaker  |
|--------------|---|
| : Recorde    | ers without panel overbridge  |
| T: Recorde   | ers with panel overbridge   |
| ORDER NUMBER | PART NAME SPECIFICATION   |
| 1.180.165.00 | Cable set for connecting one spooling motor with one SPOOLING MOTOR DRIVE AMPLIFIER (GRP33/ELM03 <-> GRP36/ELM02 left, GRP30/ELM03 <-> GRP37/ELM02 right)                                       |
| 1.820.591.00 | Wire harness from SWITCHING STABILIZER PCB to BASIS PCB AUDIO (GRP32/ELMO2 <-> GRP21/ELMO2)   |
| 1.820.592.00 | Wire harness from SPOOLING MOTOR SUPPLY to<br>both SPOOLING MOTOR DRIVE AMPLIFIERS<br>GRP30/ELMO1 <-> GRP31/ELMO1 <-> GRP33/ELMO  |
| 1.820.894.00 | Wire harness from DISTRIBUTION PCB (in panel overbridge) to MONITOR AMPLIFIER PCB (in ext. monitor unit) (GRP70/ELM13 <-> GRP71/ELM01)  |
| 1.820.895.00 | Wire harness from MONITOR AMPLIFIER PCB (in int. monitor unit) to phones socket (incl. socket) (GRP28/ELM05 <-> GRP28/ELM06)  |
| 1.820.896.00 | Wire harness from BASIS PCB AUDIO to MONI-<br>TOR AMPLIFIER PCB (in int. monitor unit) or<br>to MONITOR AMPLIFIER PCB (in ext. monitor<br>unit (GRP21/ELM13 <-> GRP28/ELM01 or GRP71/<br>ELM01) |
| 1.820.897.00 | Wire harness from BASIS PCB AUDIO to DISTRIBUTION PCB (in panel overbridge) (GRP21/ELM11,12,13 <-> GRP70/ELM09,11,12)   |
| 1.820.898.00 | Wire harness from BASIS PCB AUDIO to INTER-<br>FERENCE FILTER PCBs (GRP21 <-> GRP22,23,24   |
| 1.820.899.00 | Wire harness from BASIS PCB AUDIO to<br>headblock (GRP21 <-> GRP60/ELM01)   |

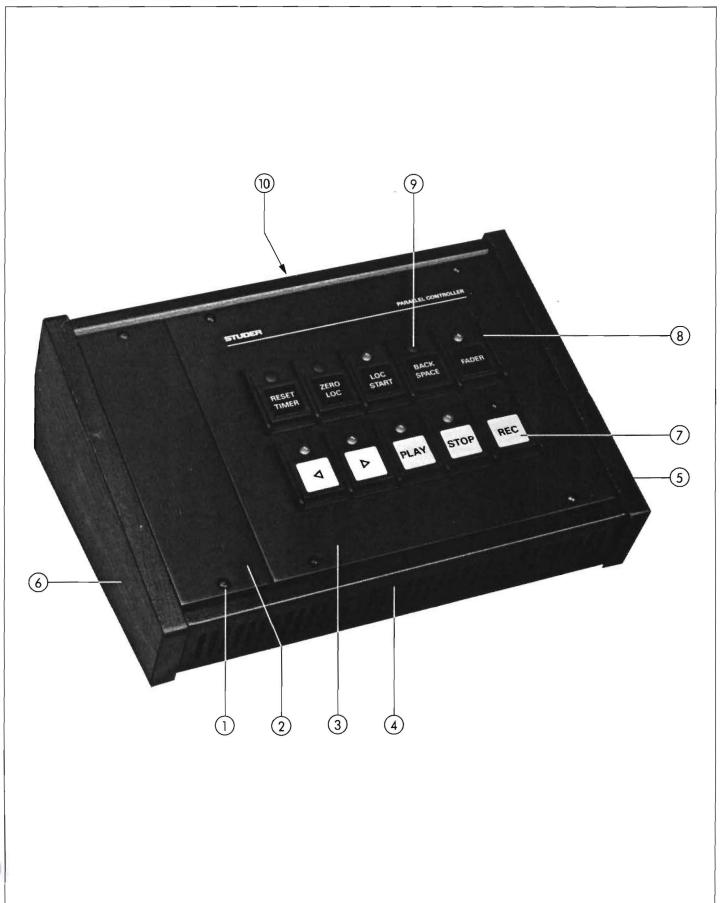
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|  | 1.520.271.00 | 9/1/ |
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| 1 820 762 00   | TAPE DECK PEDIDHEDA CUNIBULLES DES «CCC»  | 5/99                         |
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| .820.766.00  | - TAPE DECK INDICATOR PCB (PART OF 1.820.240)   | 6/31                         |
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| 1.820.770.00   | MOTOR TACHO BOR "ESE"   | 5/97                         |
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| 1.820.792.00<br>1.820.793.81<br>1.820.794.00<br>1.820.795.00<br>1.820.796.00                                     | DISTRIBUTION PCB HEAD ASSEMBLY IDENTIFIER PCB - SOURCE SELECTOR PCB (PART OF 1.820.235/.580)  | 7/49                         |
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| 1.820.792.00<br>1.820.793.81<br>1.820.794.00<br>1.820.795.00<br>1.820.796.00<br>1.820.797.00/.81<br>1.820.860.00 | DISTRIBUTION PCB HEAD ASSEMBLY IDENTIFIER PCB - SOURCE SELECTOR PCB (PART OF 1.820.235/.580) - LC DISPLAY CONNECTOR PCB (PART OF 1.820.233) - MONITOR AMPLIFIER PCB "ESE" (PART OF 1.820.235/.580)  | 7/49<br>7/51<br>6/37<br>7/51 |
| 1.820.792.00<br>1.820.793.81<br>1.820.794.00<br>1.820.795.00<br>1.820.796.00<br>1.820.797.00/.81                 | DISTRIBUTION PCB HEAD ASSEMBLY IDENTIFIER PCB - SOURCE SELECTOR PCB (PART OF 1.820.235/.580) - LC DISPLAY CONNECTOR PCB (PART OF 1.820.233)   | 7/49<br>7/51<br>6/37         |

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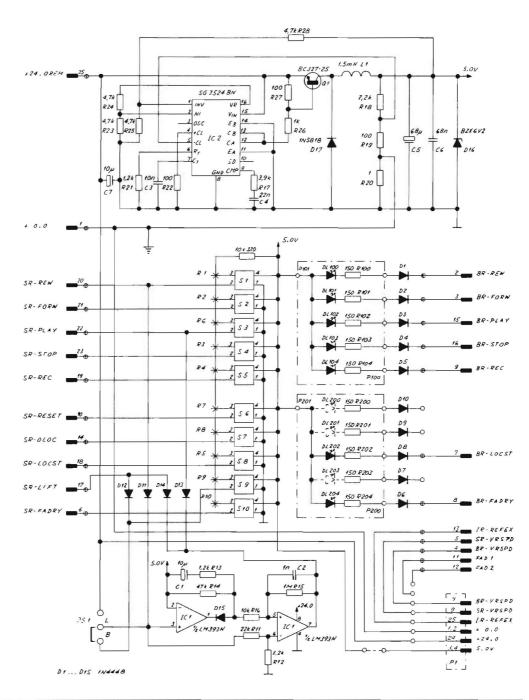
TAPE DECK REMOTE CONTROL CABINET (PARALLEL) 1.328.250



|    | QTY       | ORDER NUMBER                 | PART NAME SPECIFICA  | TION         |
|----|-----------|------------------------------|--|--------------|
|    | 1         | 1.328.250.00                 | Tape deck remote control cabinet<br>(parallel)<br>(self-adhesive labels: Section 8 |              |
|    | 1 4 4 4 4 | 1.328.250.08                 |  | M3x6         |
| 01 | 6         | 1.010.025.21                 | Round head allen screw   | M3x6         |
| 02 | 1         | 1.328.250.05                 | Dummy plate  |              |
| 03 | 1         | 1.328.250.03                 | Front cover  |              |
| 04 | 1 4       | 1.820.921.00                 | Housing compl. (with pos.5, 6, 1 and feet) Foot                                    | 10           |
| 05 | 1 4 4     |                              | Side panel r<br>Allen screw<br>Fin washer  | ight<br>M4x6 |
| 06 | 1 4 4     |                              | Side panel<br>Allen screw<br>Fin washer  | left<br>M4x6 |
| 07 | 10<br>10  | 1.011.210.01<br>1.010.202.37 | Push button<br>Pressure spring   |              |
| 80 | 2 2       |                              | Push button housing<br>Damping strip   |              |
| 09 | 3         | 1.810.300.21                 | Plastic cover  |              |
| 10 | 1 1 1     | 21.51.8454                   | Cable mounting support<br>Round head allen screw<br>Fin washer                     | M4x6         |

TAPE DECK REMOTE CONTROL CABINET (PARALLEL) 1.328.250.00
- TAPE DECK REMOTE CONTROL PCB 1.328.251.00
- LED PCB (2 x) 1.810.735.12

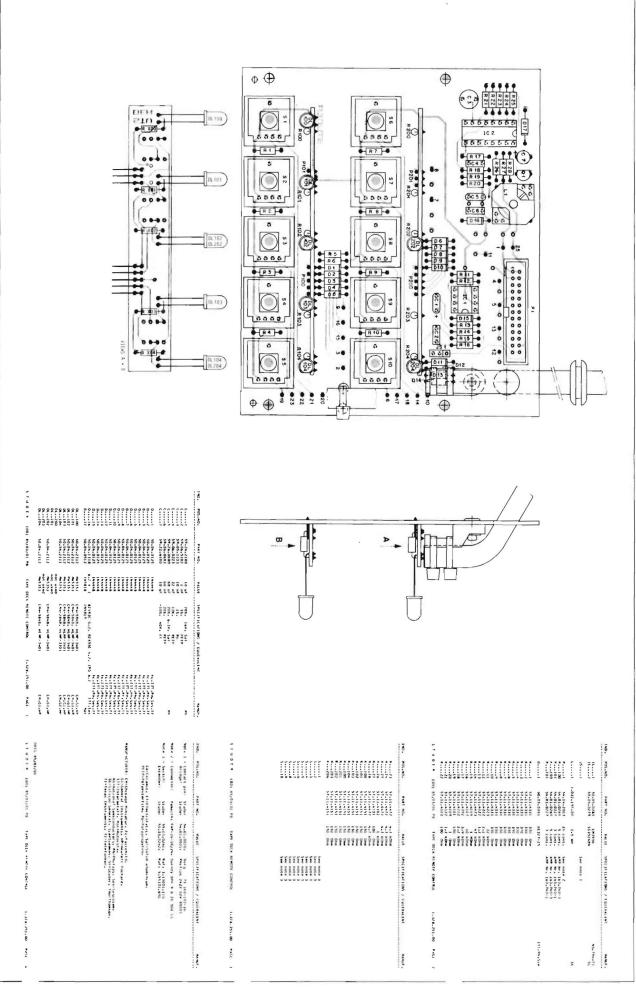




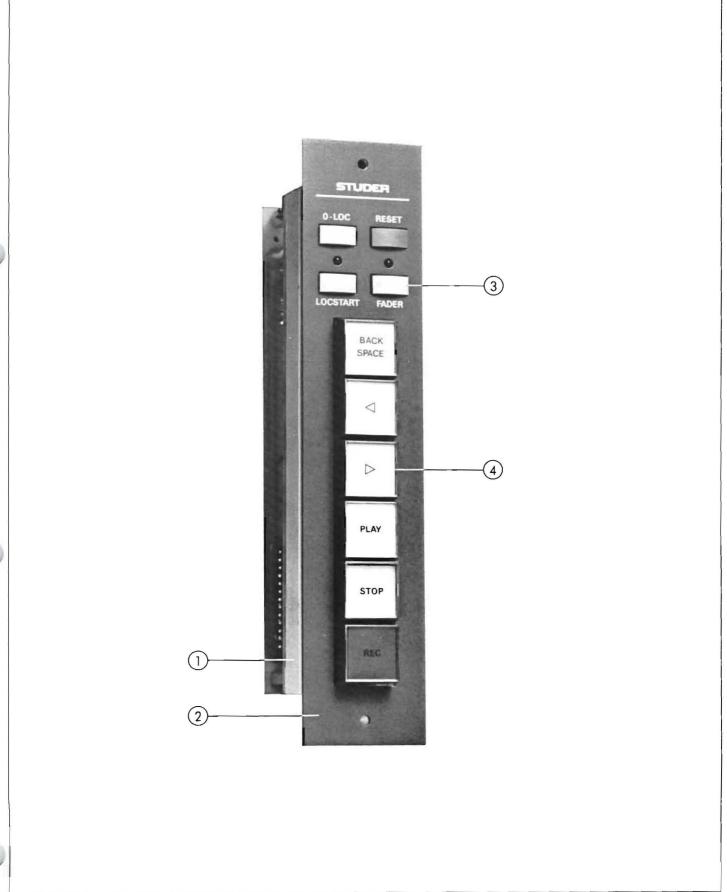
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|------------|-----------|-----------|--------|----|--------------|
|            |           |           |        |    | PAGE 4 OF 4  |
| STUDER     | TAPE DECK | REMOTE CO | ONTROL | sc | 1.328.251-00 |

A820

MENDINAS

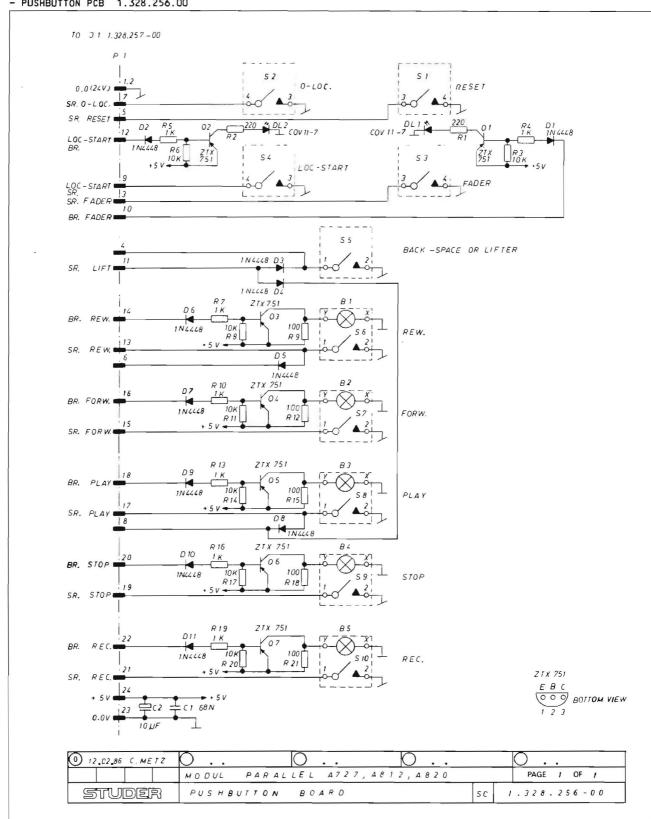


TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255



|    | QTY                   | ORDER NUMBER                           | PART NAME SF  | ECIFICATION                     |
|----|-----------------------|--|---|---------------------------------|
|    | 1                     | 1.328.255.00                           | Tape deck remote control (parallel) (labels: Section 8.23)  | module                          |
|    | 1 1 4 4 4 4           | 1.328.257.00<br>1.010.110.27           |   | M3x6                            |
| 01 | 1                     | 1.328.255.01                           | Support   |                                 |
| 02 | 1                     | 1.328.255.02                           | Front plate   |                                 |
| 03 | 1                     |  | Push button knob<br>Push button knob  | red<br>grey                     |
| 04 | 1<br>5<br>1<br>5<br>6 | 55.15.0202<br>55.15.0212<br>55.15.0221 | Push button cover<br>Push button cover<br>Diffusing screen<br>Diffusing screen<br>Push button frame | concave<br>flat<br>red<br>white |

TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255.00 - PUSHBUTTON PCB 1.328.256.00



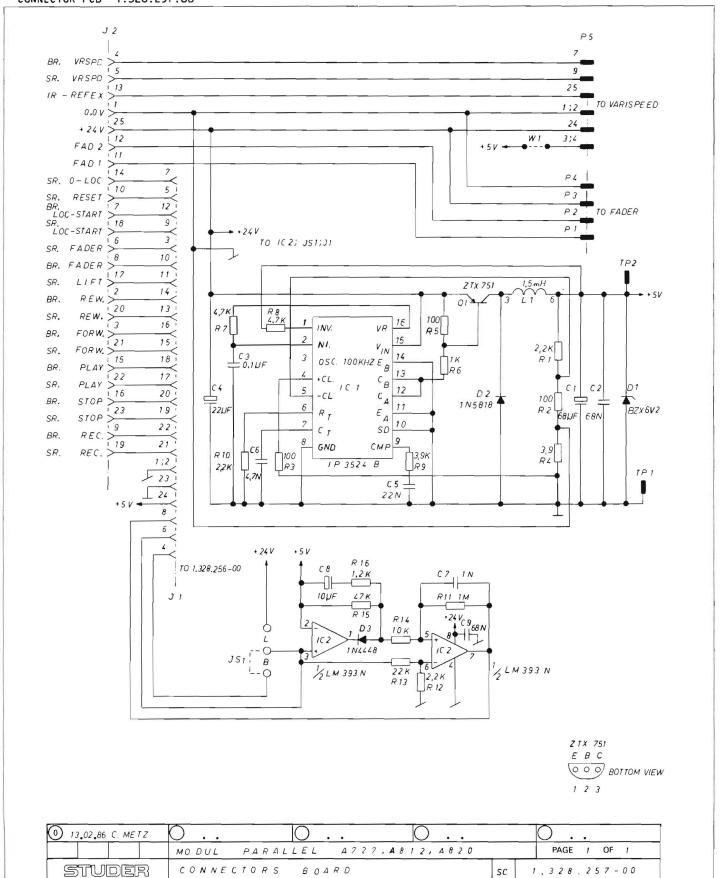
MENGINA

A.S. **Ф**индина • 0 50,00 55.45 0128 (3x) 55 15 0122 4 J1 (18 Srk.) 0 55 15 02 28 (6x) 55 15 02 24 (6x) 55 15 0202 (5x) 2 R R D 55 15 0201 P₁ <u>€</u>2→ STOP 0 Ф 55.15 0212 (de Germanne, fileding teolytic, depantallized Paper, differentiated trace)
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Le i Ferrant;
MCC - Meannis Elektrikk Compagn; af 1979
Sie - Stemmns PART NO. 1111 CAMOS MOLLINGHISPIA 30 MA SACTATOR STORES 351 246 1000 Ž. TANUI. EEEEEE!!!! :: \*\*\*\*\*\*

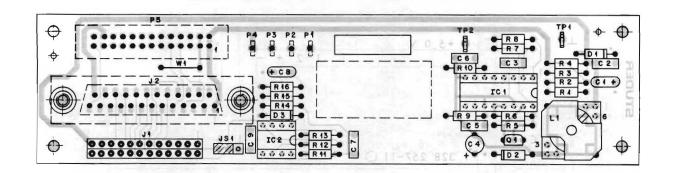
2 L 0 5 4 5 (00) #9/6/11 Cw

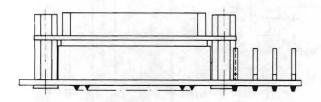
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TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255.00 - CONNECTOR PCB 1.328.257.00



TAPE DECK REMOTE CONTROL MODULE (PARALLEL) 1.328.255.00 - CONNECTOR PCB 1.328.257.00





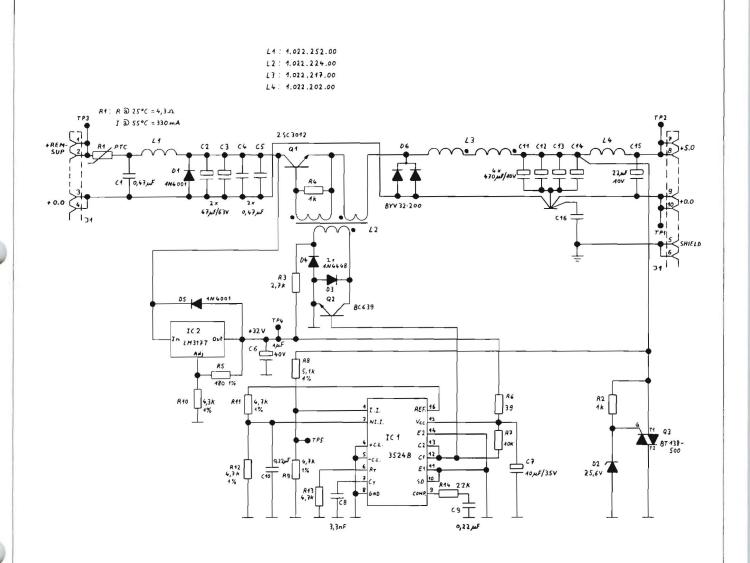
| IND.  | POS.NO. | PART NO.       | VALUE      | SPECIFICATIONS / EQUIVALENT        | MANUF. | IND.    | POS-NO-       | PART NO.                                     | VALUE             | SPECIFICATIONS / EQUIVALENT  | MANU   | JF . |
|-------|---------|----------------|------------|------------------------------------|--------|---------|---------------|--|-------------------|------------------------------|--------|------|
|       | C 1     | 59-26-0680     | 68 u       | 201. 6.3V . SAL                    |        |         | R 6           | 57-11-4102                                   | 1.0 k             | 23, 0207 . MF                |        |      |
|       | C Z     | 59-06-0683     | -068 u     | 101. 63V . PETP                    |        |         | R 7           | 57-11-4472                                   | 4.7 k             | 2% 0207 . MF                 |        |      |
|       | C 3     | 59.06.0104     | .1 v       | 10%, 63V . PETP                    |        |         | R 8           | 57-11-4472                                   | 4.7 K             | 2%, 0207 , MF                |        |      |
|       | C4      | 59-22-6220     | 22 u       | -20%, 35V , EL                     |        |         | R 9           | 57-11-4392                                   | 3.9 k             | 2%, 0207 . MF                |        |      |
|       | C       | 59-06-0223     | -022 u     | 103. 63V . PETP                    |        |         | R 10          | 57-11-4222                                   | 2.2 k             | 2%, 0207 , 4F                |        |      |
|       | C       | 59-96-0472     | 4700 p     | 101. 63V . PETP                    |        |         | R 11          | 57-11-4105                                   | 1 #               | 23. 0207 . MF                |        |      |
|       | C 7     | 59-06-0102     | 1000 p     | 101. 63V . PETP                    |        |         | R 12          | 57-11-4222                                   | 2.2 K             | 2% 0207 . MF                 |        |      |
|       | C B     | 59-26-2100     | 10 u       | 203. 16V . SAL                     |        |         | K 13          | 57-11-4223                                   | 22 k              | 2%, 0207 . MF                |        |      |
|       | C9      | 59.00-0683     | -068 u     | 10% - 63V - PETP                   |        |         | R 14          | 57-11-4103                                   | 10 k              | 2%, 0207 . 4F                |        |      |
|       |         | 7.77           |            |                                    |        |         | K 15          | 57-11-4473                                   | 47 K              | 2%. 0207 . MF                |        |      |
|       | 01      | 50.04.1118     | 82× 642    | 5%, 6.2 V. 0.40 4. L.              |        |         | Reseald       | 57-11-4122                                   | 1.2 k             | 23. 0207 . MF                |        |      |
|       | D 2     | 50-04-0512     | L N 5618   | SCHOTTKY                           | Mot.   |         |               |  |                   |                              |        |      |
|       | 03      | 50.04.0125     | 1 N 4448   | 75 V; 100 mA; ST                   |        |         | TP1           | 54.02.0320                                   | 2.8 . 0.8         | SOLDERING PIN                |        |      |
|       |         |                |            | 10 to 100 to 100                   |        |         | TP 2          | 54.02.0320                                   | 2.8 . 0.8         | SOLDERING PIN                |        |      |
|       | 101     | 50.05.0279     | IP 3524 B  | REGULATING PULSE WIOTH MODULATOR   | 105-   |         | //ownersone   | a a a se |                   |                              |        |      |
|       | 102     | 50-05-0283     | LM 393 N   | DUAL LOW POWER COMPARATOR          | TI.    |         |               |  |                   |                              |        |      |
|       | J1      | 53.03.0212     | 2 0 12 PIN |                                    |        |         |               |  |                   |                              |        |      |
|       | J2      | 54-13-0023     |            | D-TYPE, 25 PIN PRINT FEMALE CONNEC | TOR    |         |               |  |                   |                              |        |      |
|       | J\$1    | 54-01-0021     | 2 . 0.63   | JUNPER                             |        |         |               |  |                   |                              |        |      |
|       | 11      | 1.022.197.00   | L.5 mH     | CHOKE                              | St.    |         |               |  |                   |                              |        |      |
|       | P 1     | 54.02.0320     | 2.8 . 0.8  | SOLOERING PIN                      |        | CER =C  | eranic, ELa   | Electrolytics                                | MP = MeLall   Zed | Paper, MPC-Metallized Poly-  |        |      |
|       | P 2     | 54.02.0320     | 2-8 0 D-8  | SOLDERING PIN                      |        | c ar bo | nate. MPLIP   | Metallized Po                                | yester. PC=P      | olycarbonate, PETP=Polyester |        |      |
|       | P 3     | 54-02-0320     | 2.8 0 0.8  | SOLDERING PIN                      |        | PP=PO   | l ypropy lene | · PS=Polystyro                               | . SAL=Solid       | Aluminium. TA=Tantal         |        |      |
|       | P4      | 54.02.0320     | 2.8 0 0-8  | SOLOERING PIN                      |        | Cerme   | t=Ceramic M   | etal, MF=Metal                               | Film.             |                              |        |      |
|       | P 5     | 54.14.2003     |            | 26 PIN PRINT MALE CONNECTOR        |        |         |               |  |                   |                              |        |      |
|       |         |                |            |                                    |        | MANUF   | ACTURERS :    |  |                   |                              |        |      |
|       | Q 1     | 50.03.0352     | Z1X 751 S  | 60 V. 2 A. PNP SI                  | Fa.    |         |               | Fe . Ferrant                                 | i                 |                              |        |      |
|       |         |                |            |                                    |        |         |               | IPS = Integra                                | ted Power See     | iconductors Limited          |        |      |
|       | Reseal  | 57-11-4222     | 2.2 k      | 2%, 0207 . MF                      |        |         |               | Mot = Motorol                                | a                 |                              |        |      |
|       | R 2     | 57.11.4101     | 100        | 2%. 0207 . MF                      |        |         |               | St # Studer                                  |                   |                              |        |      |
|       | R 3     | 57-11-4101     | 100        | 2%, 0207 . MF                      |        |         |               | II . Texas I                                 | astruments        |                              |        |      |
|       | R 4     | 57-11-4399     | 3.9        | 2%, 0207 , MF                      |        |         |               |  |                   |                              |        |      |
|       | R5      | 57-11-4101     | 100        | 2%, 0207 . MF                      |        | ORIG    | 86/02/14      |  |                   |                              |        |      |
| s r u | 0 E R 1 | 00) 86/02/14 C | M CONNECTO | RS BUARO 1-328-257-00              | PAGE 1 | 5 7 0   | D E R (0      | 0) 86/02/14 C                                | - CONNECTO        | DRS BUARD 1.328.257-         | 00 PAG | L    |

REMOTE TIMER/LAP MODE DISPLAY (SERIAL) 1.328.270



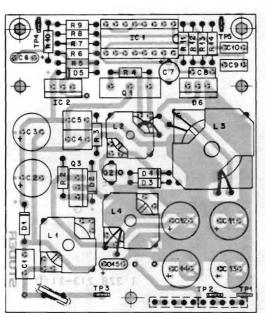
|    | QTY                   | ORDER NUMBER   | PART NAME SPECIFICATION  |
|----|-----------------------|--|--|
|    | 1                     | 1.328.270.00   | Remote timer/lap mode display (self-adhesive labels: Section 8.23)       |
|    | 1<br>3<br>3<br>3      | 21.53.0354<br>23.01.1032<br>24.16.1030                 | STABILIZER PCB Allen screw M3x6 Washer Fin washer TIMER DISPLAY PCB      |
|    | 1 2 2 2               | 1.328.270.14<br>21.53.0354<br>23.01.1032<br>24.16.1030 | Insulation<br>Allen screw M3xó<br>Washer<br>Fin washer                   |
|    | 1<br>4<br>3<br>3<br>1 | 21.53.0354<br>23.01.1032<br>24.16.1030                 | TIMER DRIVER PCB Allen screw M3x6 Washer Fin washer Serrated lock washer |
| 01 | 2                     | 1.010.025.21   | Round head allen screw M3x6  |
| 02 | 1                     |  | Push button housing<br>Damping strip                                     |
| 03 | 2                     |  | Push button<br>Pressure spring   |
| 04 | 1 4                   |  | Front cover<br>Countersunk allen head screw                              |
| 05 | 1 6                   | 1.328.274.00<br>1.010.045.21                           |  |
| 06 | 1 4                   | 1.328.273.00   | Bottom cover<br>Foot   |
| 07 | 1                     | 1.820.232.02   | Filter screen red  |

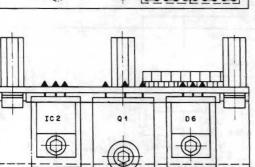
REMOTE TIMER/LAP MODE DISPLAY 1.328.270.00 REMOTE CONTROL CABINET (SERIAL) 1.328.210.00 REMOTE CONTROL MODULE (SERIAL) 1.328.220.00 - STABILIZER PCB 1.328.213.00

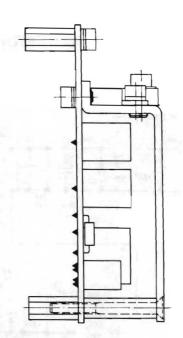


| 0 05.02.85 CHE | 0          | 0     | 0 |    | 0            |
|----------------|------------|-------|---|----|--------------|
|                | A820/A812  |       |   |    | PAGE 1 OF 1  |
| STUDER         | STABILIZER | BOARD |   | sc | 1.328.213.00 |

REMOTE TIMER/LAP MODE DISPLAY 1.328.270.00 REMOTE CONTROL CABINET (SERIAL) 1.328.210.00 REMOTE CONTROL MODULE (SERIAL) 1.328.220.00 - STABILIZER PCB 1.328.213.00





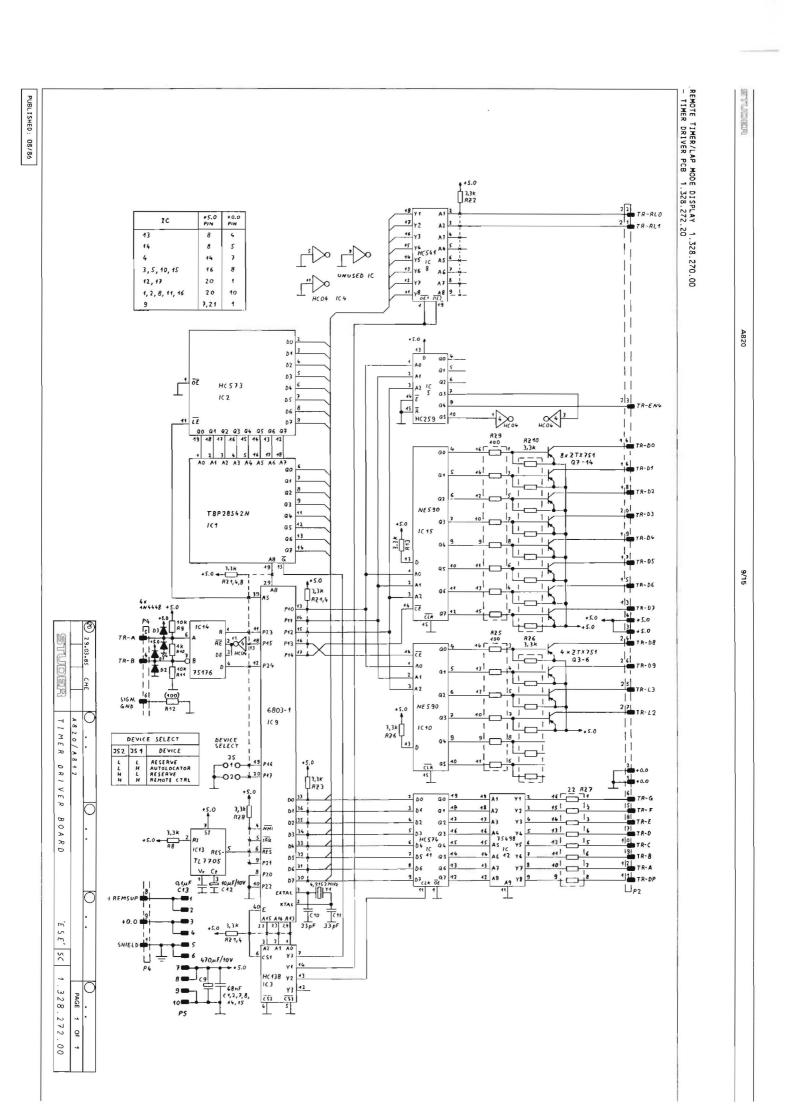


| IND. | POS-NO. | PART NO.   |      | VALUE | SPECIFICATIONS / EQUIVALENT | MANUF |
|------|---------|------------|------|-------|-----------------------------|-------|
|      | 801     | 57.92.1331 | PTC  |       | see note 2                  | Ph    |
|      | A 02    | 57-11-4102 | 1    | kOhm  | 21                          |       |
|      | R 03    | 57.11.4272 | 2.7  | kOhm  | 21                          |       |
|      | R 04    | 57-11-4102 | 1    | kOhm  | 21                          |       |
|      | R 05    | 57-11-3161 | 180  | Ohe   | 14                          |       |
|      | R O6    | 57.11.4390 | 39   | Ohm   | 2%                          |       |
|      | A 07    | 57-11-4103 | 10   | kOhm  | 21                          |       |
|      | A 08    | 57-11-3512 | 5.1  | kOnm  | 1%                          |       |
|      | R 09    | 57-11-3472 | 4.7  | kOne  | 12                          |       |
|      | R 10    | 57-11-3432 | 4.3  | kOhm  | 12                          |       |
|      | R 11    | 57-11-3472 | 4.7  | k Dhm | 12                          |       |
|      | R 12    | 57-11-3472 | 4.7  | kOhm  | 11                          |       |
|      | R 13    | 57-11-4472 | 4.7  | k0hm  | 21                          |       |
|      | R 14    | 57-11-4223 | 22   | kOhm  | 21                          |       |
|      | P01     | 54.02.0320 | Test | Paint |                             |       |
|      | P 02    | 54.02.0320 | Test | Point |                             |       |
|      | P 03    | 54.02.0320 | Test | Point |                             |       |
|      | P 04    | 54-02-0320 | Test | Point |                             |       |
|      | P 05    | 54-02-0320 | Test | Point |                             |       |

S T U D E R (PP) 85/02/05 SU STABILIZER BOARD

S T U D E R (PP) 85/02/05 SU STABILIZER BOARD

1.328.213-00 PAGE 3



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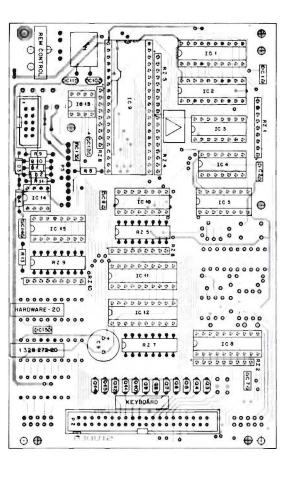
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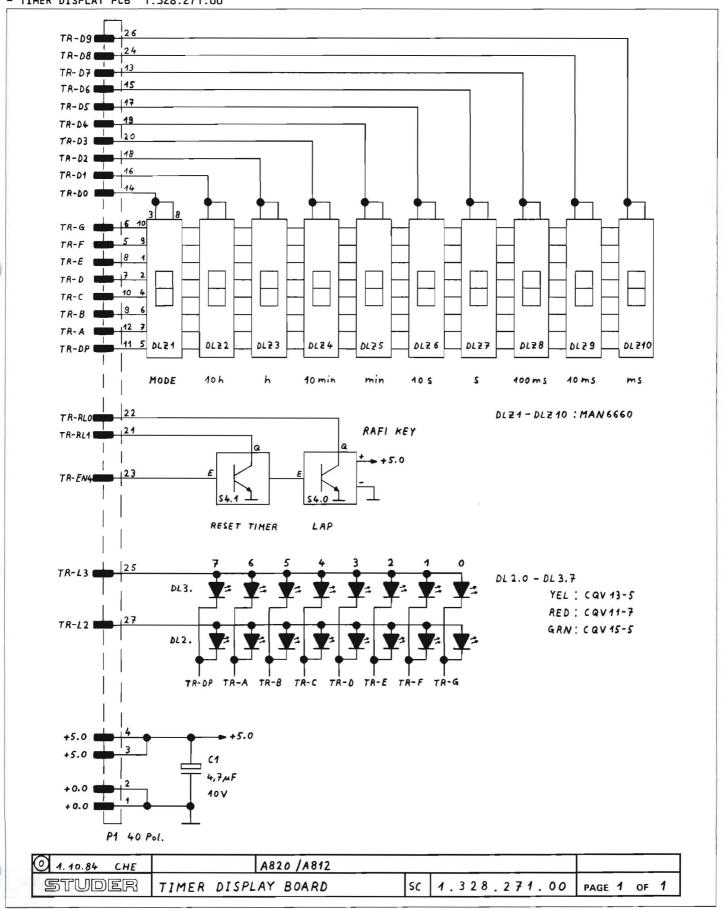
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REMOTE TIMER/LAP MODE DISPLAY 1.328.270.00 - TIMER DRIVER PCB 1.328.272.20

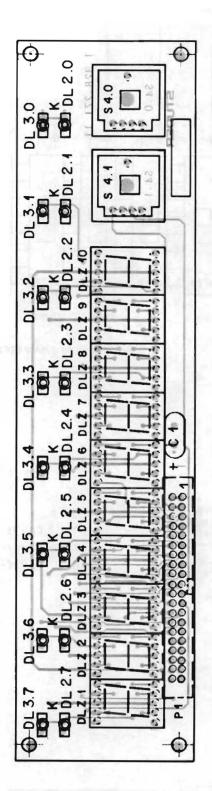
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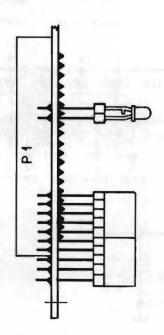
REMOTE TIMER/LAP MODE DISPLAY 1.328.270.00 - TIMER DISPLAY PCB 1.328.271.00



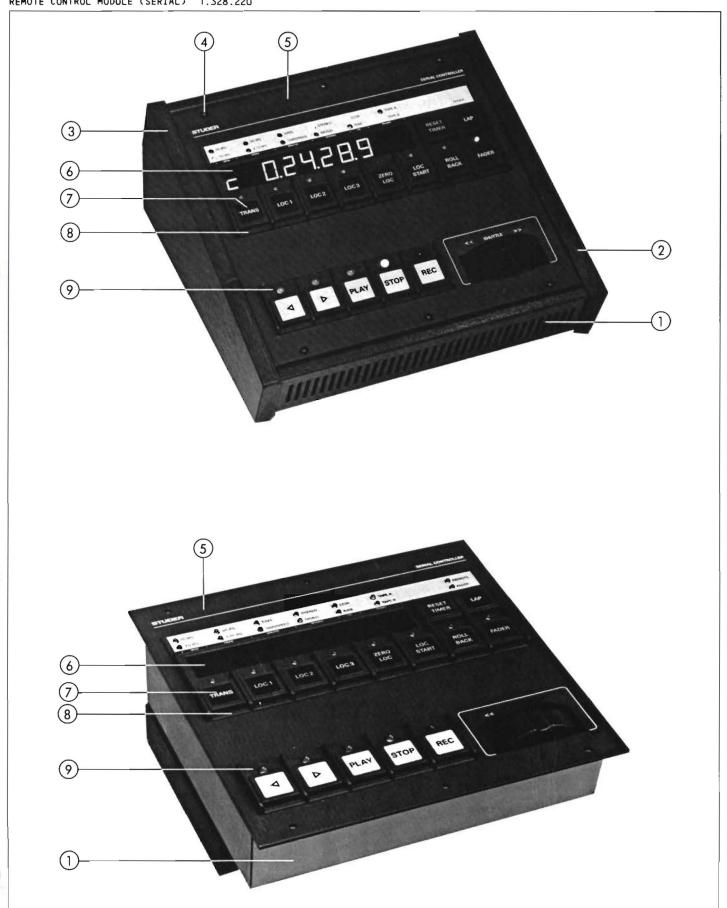
REMOTE TIMER/LAP MODE DISPLAY 1.328.270.00 - TIMER DISPLAY PCB 1.328.271.00



| THO.   | POS.NO.     | PART NO.       | VALUE         | SPECIFICATIONS / EQUIVALENT      | MANUF |
|--------|-------------|----------------|---------------|----------------------------------|-------|
|        | C 1         | 59-26-1479     | 4.7uF         | -20%, 10%, Sal                   | Ph.Ri |
|        | 00          | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 2 . 1    |                | not used      | 12/1/27                          | ,,,,  |
|        | DL 2 . 2    | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 2 - 3    | 50-34-2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 2 - 4    | 50-04-2131     | LG 3160-GK    | Green                            | Sie   |
|        | DL 2 - 5    | 50-04-2129     | LS 3160-HL    | Red                              | Sie   |
|        | DL 2 . 6    | 50-04-2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 2 . 7    | 50.04.2131     | LG 3160-GK    | Green                            | Sie   |
|        | DL 3.0      | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 3 - 1    |                | not used      |                                  |       |
|        | DL 3.2      | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | OL 3 - 3    | 50-04-2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 3.4      | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | OL 3.5      | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | OL 3 . 6    | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DL 3 - 7    | 50.04.2130     | LY 3160-GK    | Yellow                           | Sie   |
|        | DLZ1        | 73-01-0124     | MAN 6660      | 7-Segments, Red. Brightness "6"  | G.I   |
|        | DL Z 2      | 73-01-0124     | 0400 MAM      | 7-Segments, Red, Brightness "G"  | 61    |
|        | DL23        | 73-01-0124     | 0000 MAM      | 7-Segments, Red, Brightness "G"  | 61    |
|        | DL 2 4      | 73-01-0124     | 0000 MAM      | 7-Segments, Red, Brightness "G"  | GI    |
|        | DL 2 5      | 73-01-0124     | MAN 6660      | 7-Segments, Red, Brightness "G"  | G I   |
|        | DL2 6       | 73-01-0124     | MAN AAAO      | 7-Segments, Red, Brightness "G"  | GI    |
|        | OL2 7       | 73-01-0124     | 0444 MAM      | 7-Segments . Red. Brightness "G" | 61    |
|        | OL Z 8      | 73-01-0124     | MAN 6660      | 7-Segments, Red, Brightness "G"  | G I   |
|        | DL 2 9      | 73-01-0124     | MAN 6660      | 7-Segments . Red. Brightness "G" | 61    |
|        | DL 2 10     | 73-01-0124     | MAN 6660      | 7-Segments, Red, Brightness "G"  | GI    |
|        | 5 4 . 0     | 55.03.0261     | TTL-switch    | 1 . OC. Raft Nr. 3-13001-110     |       |
|        | S 4-1       | 55.03.0261     | TTL-switch    | 1 . OC. Rafi Nr. 3-13001-110     |       |
|        |             | 54-14-2004     |               |                                  |       |
|        | ******      | 34-14-2004     | 40 cont.      | see note 1                       |       |
| Note ! | - Connect   |                | maich: Mr. FA |                                  |       |
|        |             | Bu             | rndy Nr. BP   | H 9 B 40 B00 GS                  |       |
| SALES  | olid Alumin | Lum            |               |                                  |       |
|        |             |                |               |                                  |       |
| HANUFA | CTURERS: G  | 1=General Inst | ruments. Ph=P | hilips, Ri=Rifa, Sie=Siemens.    |       |
| DRIG 6 | 15/04/23    |                |               |                                  |       |
| STU    | 0 E R [0]   | P) 85/04/23 SU | TIMER DI      | SPLAY BOARO 1.328-271.00         |       |
|        |             |                |               |                                  |       |



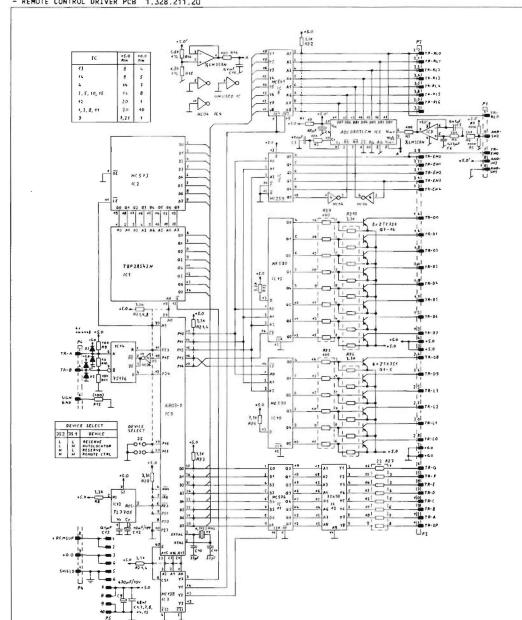
REMOTE COTNROL CABINET (SERIAL) 1.328.210
REMOTE CONTROL MODULE (SERIAL) 1.328.220



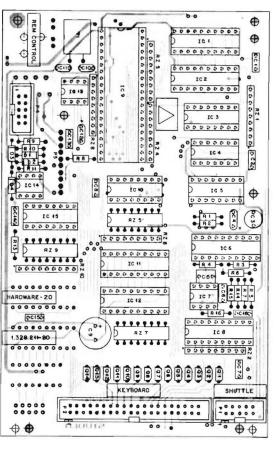
|    | QT        | Υ   | ORDER  | NUMBER   | PART NAME SPECIFICATION  |
|----|-----------|---|--|--|--|
|    | 1         |   | 1.328.   | 210.00   | Remote control cabinet (serial) (self-adhesive labels: section 8.23)   |
|    |           | 1   | 1.328.   | 220.00   | Remote control module (serial) (self-adhesive labels: section 8.23   |
|    | 3 1 4 4 4 | 1<br>3<br>3<br>3<br>1<br>4<br>8<br>8<br>8 | 21.5<br>24.1<br>23.0<br>1.328.<br>1.010.<br>21.5<br>1.010.<br>24.1<br>23.0                   | 33.0354<br>6.1030<br>01.1032<br>.211.20<br>.054.27<br>.021.27<br>53.0354<br>.025.21<br>16.1030<br>01.1032        | REMOTE CONTROL DRIVER PCB Hex stud bolt Hex stud bolt Allen screw M3x6 Round head allen screw M3x6 Fin washer          |
| 01 | 1 4       | 1666661166611                             | 31.0<br>1.328.<br>21.5<br>24.1<br>1.010.<br>24.1<br>23.0<br>1.010.<br>24.1<br>23.0<br>1.080. | 33.0354<br>16.1030<br>118.27<br>16.1030<br>11.1032<br>052.17<br>220.01<br>118.27<br>16.1030<br>11.1032<br>715.04 | Bottom cover Allen screw Fin washer Hex stud bolt Fin washer Washer Border protection Chassis Hex stud bolt Fin washer |
| 02 | 1 4 4     |   | 21.5   | 3.0454   | Side panel right<br>Allen screw M4x6<br>Fin washer   |
| 03 | 1 4 4     |   | 21.5   | 3.0454   | Side panel Left Allen screw M4x6 Fin washer  |
| 04 | 6         |   | 1.010.   | 025.21   | Round head allen screw M3x6  |
| 05 | 1         | 1   |  |  | Front cover compl.  containing all parts marked with ""  Front cover compl.  containing all parts marked with ""       |
|    | 1.        | 1   |  |  | Front cover<br>Front cover   |
|    |           | 6   | 21.5<br>23.0   | 210.06<br>3.0353<br>01.1032  | REMOTE CONTROL DRIVER PCB Hex stud bolt Allen screw M3x5 Washer Fin washer   |
| 06 | 1.        | 1   | 1.820.   | 232.02   | Filter screen red  |
| 07 |           |   |  |  | Push button<br>Pressure spring   |
| 80 | 1=        | 1   | 1.810.   |  | Push button housing<br>Damping strip, for 2 push buttons<br>Damping strip, for 8 push buttons                          |
| 09 | 1=        | 1   | 1.810.   | 300.03   | Push button housing<br>Damping strip, for 5 push buttons   |

| 10 |     | 1.328.215.00<br>1.328.214.00 | Shuttle assembly compl.<br>SHUTTLE PCB |           |
|----|-----|------------------------------|--|-----------|
| 1  | 2.2 | 1.328.210.09                 | Spec. nut                              |           |
|    | 2.2 | 22.01.8030                   | Nut                                    | м3        |
|    | 1=1 | 1.328.215.03                 | Shuttle wheel                          |           |
|    | 1=1 | 1.328.216.00                 | Push button compl.                     |           |
|    | 1-1 | 36.01.0302                   | Toothed wheel                          |           |
|    | 2.2 | 1.010.101.37                 | Tension spring                         |           |
|    | 101 | 58.99.0139                   | Potentiometer                          | 5 kΩ, 2 W |

REMOTE CONTROL CABINET (SERIAL) 1.328.210.00 REMOTE CONTROL MODULE (SERIAL) 1.328.220.00 '- (STABILIZER PCB 1.328.220: SEE PAGE 9/13) - REMOTE CONTROL DRIVER PCB 1.328.211.20



| @ 04.01.85 CHE | 0                 | 0                 |    | 0            |
|----------------|-------------------|-------------------|----|--------------|
|                | A 8 2 0 / A 8 1 2 |                   |    | PAGE 1 OF 1  |
| STUDER         | REMOTE CONTROL    | DRIVER BOARD'ESE' | sc | 1.328.211.00 |



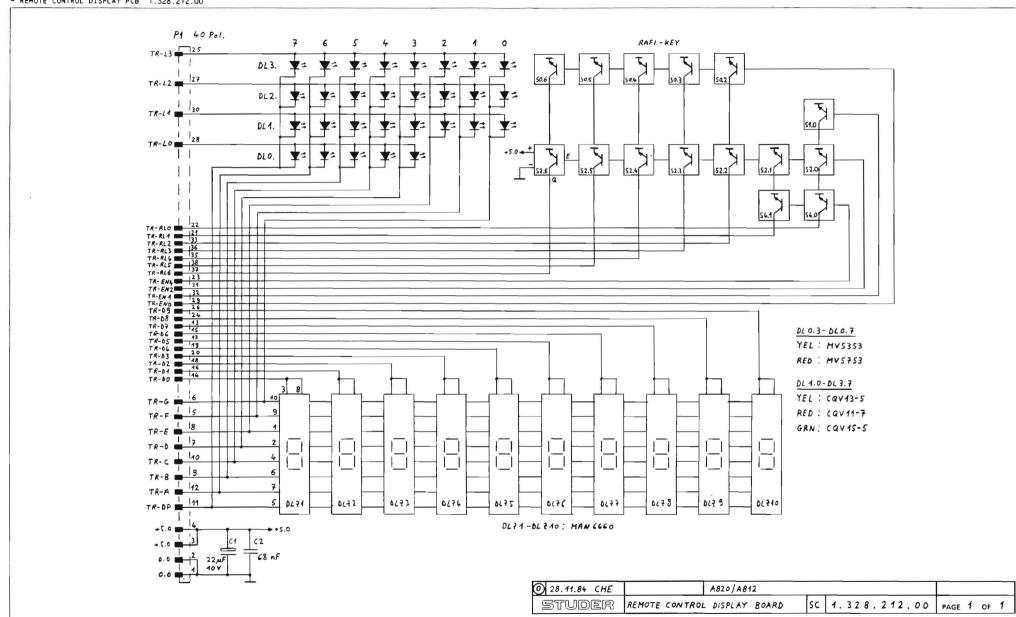
EMOTE CONTROL CABINET (SERIAL) 1.328.270.00
STABLITZER PCB 1.328.220.00
STABLITZER PCB 1.328.220. SEE PAGE 9/13)
REMOTE CONTROL DRIVER PCB 1.328.211.20

A820

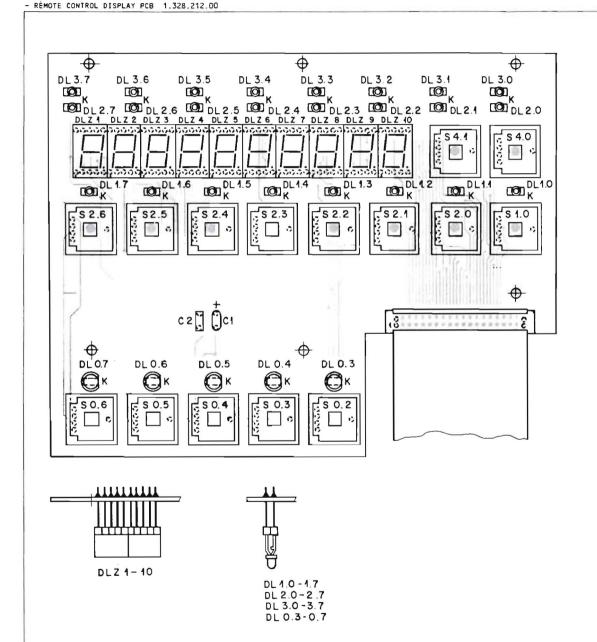
9/22

|  |                           | 1            | 5                                       | 100.                                  |
|--|---------------------------|--------------|---|---------------------------------------|
|  |                           | 9. 8         |   | 010.                                  |
|  |                           | Į            |   | Part 40.                              |
| F  | 200                       | ***          | # # # # # # # # # # # # # # # # # # #   | PALUE                                 |
|  | 11                        | 3            | # 1 16 111                              | SHICH SHIPS A SHIPPING SHIPS          |
|  |                           | 1            | 9 9 9 9 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | JIVALENT                              |
| ***************************************  |                           | 3.6          |   | · tues                                |
|  | ŧ                         | 8            |   |                                       |
| Wile 1 - Commercian  | Hit + 2 - Connector -     | *0.          |   | PUD-40-                               |
| Water 1 - Calmerten - Simmerten - Simmerte | State St.                 |              |   | -0.61 ×0                              |
| A LAND OF THE PROPERTY OF THE  | **                        | 1 A W        |   | 441.04                                |
| Control Contro | 34-14-2001<br>34-14-06-74 | Junes 7 year | 7,111,1111                              | Cad the the t. C. Septie 21 at 3 he's |
|  |                           | Chiera       | * | *******                               |

REMOTE CONTROL CABINET (SERIAL) 1.328.210.00 REMOTE CONTROL MODULE (SERIAL) 1.328.220.00 - (STABILIZER PCB 1.328.220: SEE PAGE 9/13) - REMOTE CONTROL DISPLAY PCB 1.328.212.00



REMOTE CONTROL CABINET (SERIAL) 1.328.210.00 REMOTE CONTROL MODULE (SERIAL) 1.328.220.00 - (STABILIZER PCB 1.328.220: SEE PAGE 9/13)



| -AND |  | PICATIONS /  | VALUE     | Feet 40.           | POLING.       | WD. |
|------|--|--------------|-----------|--------------------|---------------|-----|
|      |  | 10V - 54%    | 22 40     | 39-20-1228         | £ 01          |     |
|      |  | 911          | 48 of     | 54.00.0681         | C 02          |     |
| 511  | * 1101   | Red. HER     | MY 5753   | 30-02111           | 010-4         |     |
| 5.0  |  | relige. HE   | MY 3353   | 50.0 - 2117        | Dt            |     |
| 541  |  | tellow. ME   | WV 5351   | 20.0-2112          | Dt 2 . 5      |     |
| 544  |  | relies. stm  | MY 5351   | 50.04.2117         | DE O. m.      |     |
| 511  | 3401   | Tellan Hin   | W# 2353   | 10.04.2112         | Dt U - !      |     |
| 5.0  |  | relies       | CON 13-7  | 50.04.2130         | 01 1 . 0      |     |
| 5.54 |  | tellow       | COV 11-1  | 50 . 0 21 30       | Diselet       |     |
| 510  |  | relige       | CGY 13-7  | 20-04-2130         | 04 1-7        |     |
| 544  |  | fellow       | COW 11-7  | 50.04.2130         | 04 1 - 3      |     |
| 544  |  | Tellow       | COV 11-1  | 50-02120           | 05 1          |     |
| See  |  | religa       | COV 11-2  | 50.04.2110         | Di 1 . 5      |     |
| 540  |  | rellaw       | COV LICT  | 50 - 0 21 80       | 05 1 -0       |     |
| 510  |  | Yellow       | COV 11-7  | 10.01.2130         | 04            |     |
| 514  |  | Vello-       | CQV 13-1  | 50-04-2130         | 05 6 . 07     |     |
|      |  |              | mile used |                    | Dt            |     |
| 511  |  | 70110-       | CON 13-1  | 10.04.2110         | Di 2          |     |
| 54.0 |  | Telles       | COV 23-7  | 50.04.2130         | Dt. + + 2 + 3 |     |
| 54   | 15-6   | Green. Cue   | 6.0V 15-5 | 50.04.2131         | 012.4         |     |
| 511  |  | Reg          | COV 11-7  | 20.30.2124         | 06            |     |
| 544  |  | **110m       | COV 13-7  | 50.04.2130         | S             |     |
| 511  | 15-4   | Green. EQ.   | COV 15-5  | 50.04.2131         | 04            |     |
| 510  |  | Tellow.      | COV 13-7  | 50.04.2130         | 05 1-0        |     |
|      |  |              | met used  |                    | Diament.      |     |
| 510  |  | Vellor       | CBY 13-2  | 30.04.2110         | Dt 3 - 2      |     |
| 544  |  | Tell pe      | COV 13-7  | 30.03.2130         | DL 3 - 3      |     |
| 544  |  | Tel Spe      | COV 13-1  | 50-24-2130         | 04 1-4        |     |
| 544  |  | Tellow       | COV 11-7  | 10.04-2130         | 56 1-5        |     |
| 500  |  | ***110*      | CDV 13-7  | 30-04-2130         | Dt 1 . 0      |     |
| 511  |  | Tellow       | COV 13-7  | 50.04.2130         | 61            |     |
| 4    | brightness "6"   | gments. And. | PAN 8680  | 73-01-012-         | 0.2 01        |     |
| 61   | Brightness "C"   | gmata, Rede  | FAN 4665  | 73.61.6124         | 0.1 02        |     |
| . 61 | Brauntmens 74"   |              | MAN BOOD  | 73.01.0124         | 01703         |     |
| 6    | Braubtness "G"   |              | MAN AGED  | 73.01.0125         | 01.705        |     |
|      | 1 200 0 P. O. P. O. P. O. C. |              |           | C. St. Contraction |               |     |
| **6( | 1-328-212-09   | DISPLAY BBAR | REMOTE CO | 1 00/01/23 98      | 0 (61         | 10  |

| IND. | POL-NO.    | PART NO.     | VALUE       | SPECIFICATIONS / EUDIVACENT       | MANU |
|------|------------|--------------|-------------|-----------------------------------|------|
|      | ********** |              |             | ************************          |      |
|      | 36.2 35    | 73.01.0124   | MAN 4445    | 7-Segments Hady brightness "G"    |      |
|      | DL 2 20    | 23.01.0124   | RAN 5562    | I-Segments, Ped, Brightness "G"   | 6    |
|      | 011 02     | 73.01.0124   | MAN 6660    | 7-Segments, Red, Brightness "G"   | 6    |
|      | DL 2 90    | 73.01.0124   | MAN 9660    | I-Segments, Red, Arsontness 'C'   | c    |
|      | 014.400    | 73.01.0124   | MAN 6665    | I-Segments, Red, Brightness "G"   | G    |
|      | DL 2 10    | 11.01.012.   | MAN 6660    | T-Segments - Reit- Braintness 76" | 6    |
|      | 50-2       | 55.03.0201   | TIL-SWITCH  | 1 + OC. Raft Nr. 3-13001-110      |      |
|      | See. 5.1   | 55.33.3261   | III-butten  | 1 * OC. 447. Mr. 1-13001-110      |      |
|      | \$ 0.4     | 33.01.02al   | Itt-switch  | 1 * OC. Raft Mr. 3.13001.110      |      |
|      | \$ 0-5     | 55.01.0761   | TTL-switch  | 1 9 DC. 84(1 Mr. 3-13001-116      |      |
|      | See. 0.6   | 55-03-0461   | Tft-switch  | 1 * 00. Ref: Nr. 3.13001.110      |      |
|      | 5 1 - 0    | \$5.03.0201  | fft-switch  | 1 + 06. Maf: Nr. 3.13001-110      |      |
|      | Sec. 2.0   | \$\$.03.0Zn1 | TIL-SHITER  | 1 * 06. Rate Sr. 3.13001.110      |      |
|      | 5 2 - 1    | 55.01.02a1   | Tit-switch  | 1 # OK. #af1 Nr. 1-13001-110      |      |
|      | 3 2 . 2    | 55.03.0761   | Itti-switch | 1 5 DE. Saft Wr. 1-13001-110      |      |
|      | See. 2. 1  | 35-91-0761   | IIIswitch   | 1 = 06. Safe Mr. 3-13001-110      |      |
|      | S          | 35-03-0261   | TIL-SWILEN  | 1 * 00. 8471 Nr. 3.13091.110      |      |
|      | See. ( . ) | 55-03-0261   | TIL-SWITCH  | 1 * GC. Rafi Mr. 3-13001-110      |      |
|      | S 2 . 6    | 25-21-0761   | TIL-SWILED  | 1 * 00. Kaft Mr. 3-11001-110      |      |
|      | \$         | \$5.03.0201  | TIL-switch  | 1 * GC. Raft Wr. 3.13001.110      |      |
|      | Sees 2-1   | 35-93-9761   | TIL-SWITER  | 1 * 00. Sett Mr. 3-13001-110      |      |
|      |            |              |             |                                   |      |

Satisfield Aluminium, PtT#-FoTyester

MANUFACTURERS: Gl-General Instruments: Sie-Siemon

SAIC 84/11/28 [61] 84/61/23

C F U D E W (01) 86/01/23 PB RENDIE CONTRUL DISPLAY BOXEG 1.378-212-03 PAGE 2

REMOTE CONTROL CABINET (SERIAL) 1.328.210.00
REMOTE CONTROL MODULE (SERIAL) 1.328.220.00
- (STABILIZER PCB 1.328.220: SEE PAGE 9/13)
- SHUTTLE PCB 1.328.214.00

TR-RLO

5

S1 RAFI KEY

TR-ENO

7

STORE WIND

ANR-SH3

8

470 \( \text{A} \)

SK Pot.

R1 (not on board)

ANR-SH1

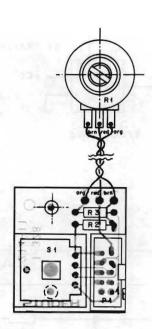
470 \( \text{A} \)

ANR-SH1

| @ 22.03.85 CHE | A820/A812     |    |              |             |
|----------------|---------------|----|--------------|-------------|
| STUDER         | SHUTTLE BOARD | sc | 1.328.214.00 | PAGE 1 OF 1 |

REMOTE CONTROL CABINET (SERIAL) 1.328.210.00
REMOTE CONTROL MODULE (SERIAL) 1.328.220.00
- (STABILIZER PCB 1.328.220: SEE PAGE 9/13)
- SHUTTLE PCB 1.328.214.00

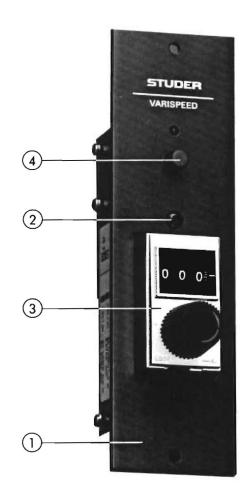


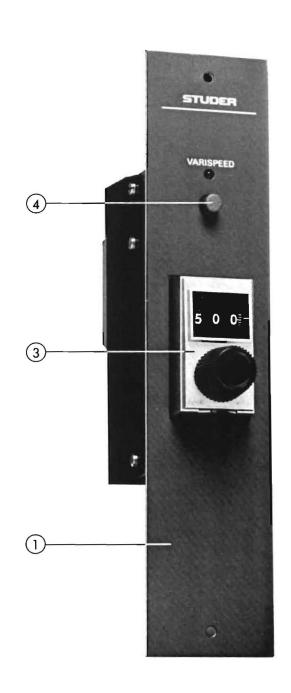


| I ND . | POS-NO- | PART NO.        | VALUE      |                             |         |
|--------|---------|-----------------|------------|-----------------------------|---------|
| THU.   | PUS-NU- | PARI NU.        | VALUE      | SPECIFICATIONS / EQUIVALENT | MANUF . |
|        |         |                 |            |                             |         |
|        | R 01    | 54-14-2001      |            | see note 1                  |         |
|        | R 02    | 57-11-4471      | 470 Ohm    |                             |         |
|        |         |                 |            | 21                          |         |
|        | R 03    | 57-11-4471      | 470 Ohm    | 21                          |         |
|        | S 01    | 55-03-0261      | TTL-switch | 3 4 M R. F. W. 3 11001 710  |         |
|        | 2000001 | 37 - U3 - UZ 61 | IIC-PHICCH | 1 0 OC. Rafi Mr.3.13001-110 |         |

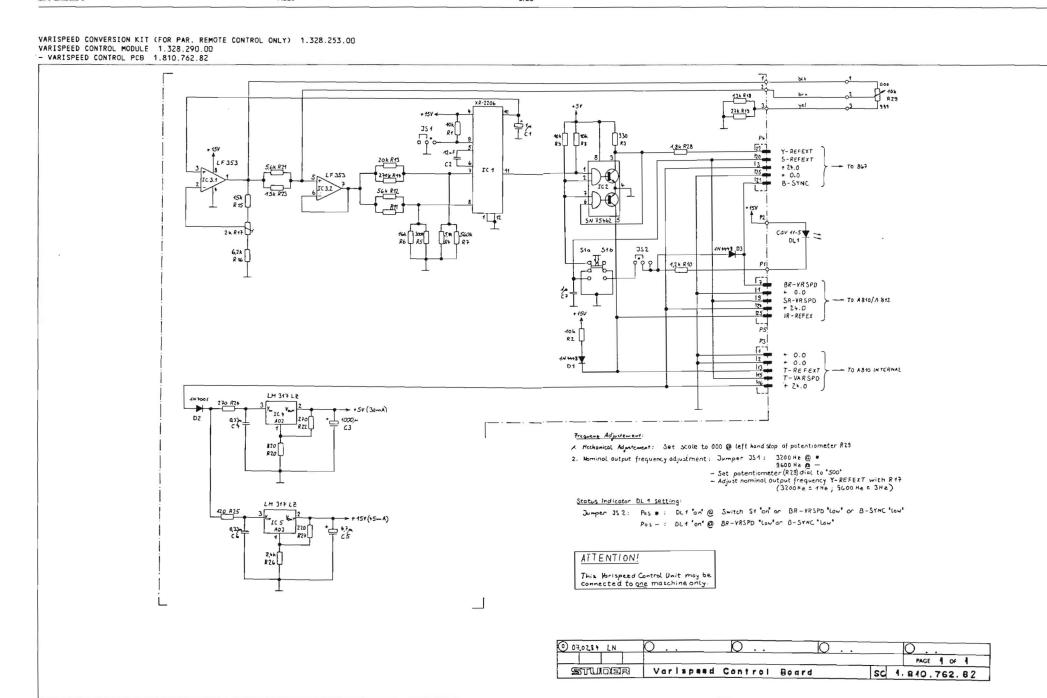
Note 1 - Connector 10 contacts: Yamaichi Nr. FAP-10-0856 Burndy Nr. 8PH 9 B 10 800 GS

VARISPEED CONVERSION KIT (FOR PAR. REMOTE CONTROL ONLY) 1.328.253.00
VARISPEED CONTROL MODULE 1.328.290.00
- VARISPEED CONTROL PCB 1.810.762.82





|    | QTY   |         | ORDER NUMBER   | PART NAME SPECIF   | CIFICATION |  |
|----|-------|---------|--|--|------------|--|
|    | 1     |         | 1.328.253.00   | Varispeed conversion kit<br>(for parallel remote control o | only)      |  |
|    |       | 1       | 1.328.290.00   | Varispeed control module                                   |            |  |
|    | 1 3 3 | 1 3 3 1 | 21.01.0279   |  | M2.5x6     |  |
| 01 | 1     | 1       | 1.328.250.10<br>1.810.330.02<br>1.328.290.01<br>1.328.290.02 | Spacer<br>Support  |            |  |
| 02 | 2     |         | 1.010.025.21   | Round head allen screw                                     | M3x6       |  |
| 03 | 1     | 1       | 58.99.0116   | Fine drive with reading scale                              |            |  |
| 04 | 1     | 1       | 1.810.320.07   | Push button, long  | red        |  |



A820

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101. No. 101. 25 (900) 20.00 1

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R 29

1.810 320-07

80460 174.0 ALVES.

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